LOYOLA UNIVERSITY
LIBRARY
NEW ORLEANS, LA.

Drug and Cosmetic Industry

JULY 1954

MEDICAL LIBRARY
AUG 3 1954
SCHOOL OF MEDICINE
HOWARD UNIVERSITY

121160

When your perfume creation

makes her a sensation,
chances are, Norda has helped

The fragrance of quality makes a perfume distinctive. Fine perfumes are always exciting. The perfumes that subtly flatter are the perfumes that women prefer.

Norda essences and fragrances are widely used for distinguished perfumes. Norda's years of experience, skill, and imagination in producing and compounding creations for quality perfumes, are depended on and widely trusted.

Let Norda help you produce perfumes of highest quality, great appeal. Norda's good scents are selling scents. Send for free Norda samples today.

Norda ESSENTIAL OIL & CHEMICAL COMPANY, INC.
601 West 26th Street, New York 1, N. Y.

CHICAGO • LOS ANGELES • SAN FRANCISCO • ST. PAUL • DALLAS • MONTREAL • TORONTO • HAVANA • LONDON • PARIS • GRASSE

Laboratory data sheet

RIBOFLAVIN U.S.P.—'ROCHE' Regular and Solutions types
RIBOFLAVIN-5'-PHOSPHATE SODIUM—'ROCHE'

Roche has 3 types of riboflavin for your manufacturing needs

The table below summarizes for quick reference helpful facts about the 3 types of Roche riboflavin. Samples of these products and a technical brochure giving complete information are available without charge. Ask your Roche representative or the Vitamin Division.

Type & Name	Properties and Uses	Solubility	Crystal Micron Size	Melting Point	Moisture Content
RIBOFLAVIN U.S.P. Roche Regular	Density and low electrostatic properties, plus virtual non-hygroscopicity provide easy handling in preparing powdered dietary supplements, pharmaceutical tablets, soft gelatin capsules and dry enrichment premixes.	0.140-.200 gram. per liter (See Note 1)	Under 20	275°-280°C.	0.8-1.5%
RIBOFLAVIN U.S.P. Roche Solutions Type	For use in parenteral solutions which approach or slightly exceed the maximum solubility of B_2. Less likely to crystallize out.	0.120 gram per liter (See Note 1)	Under 20	285°-290°C.	0.2-1.5%
RIBOFLAVIN-5'-Phosphate Sodium-Roche Theoretical B_2 content: 73% Roche product: 70-73%	Preferred for all solutions. Solubility properties allow high concentrations without use of solubilizers (See Note 2). Better taste; no bitter aftertaste as in riboflavin. Specially valuable for highly concentrated oral and parenteral multi-vitamin solutions (with or without ascorbic acid), elixirs, syrups, water-dispersible multivitamin formulations in gelatin capsules, tablets, lozenges.	Depends on pH (See Note 2)	Very fine crystal	Decomposes above 200°	Small percentage of water of crystallization

Note 1 In water at room temperature after shaking with excess for 24 hours.

Note 2 Solubility in water varies with pH as shown in table at right:

pH	Solubility
3.8	43 mg. per cc.
5.6	68 " " "
7.0	112 " " "

Packaging: In Polyethylene bags. One-kilo tamperpruf metal containers. Larger packings in fibre drums. Small quantities in amber screw cap glass bottles.

Source: Vitamin Division

HOFFMANN-LA ROCHE INC.

Nutley 10, N. J. NUtley 2-5000

Pacific Coast distributor: L. H. BUTCHER COMPANY • San Francisco • Los Angeles • Seattle • Portland Salt Lake City • *In Canada:* Hoffmann-La Roche Ltd., 286 St. Paul Street, West; Montreal, Quebec

Reprints of this advertisement in 8½" x 11" size are available on request. These can be used in the new Roche loose-leaf catalog, or in any standard 3-ring binder.

Drug and Cosmetic Industry

July 1954 Vol. 75 No. 1

feature articles

29 **Government Suit Against Perfume Importers**

30 **Ethyl Cellulose in Aerosol Hair Lacquers**
by H. G. Philips, Jr.

32 **PVP**
by Milton A. Lesser

34 **The Acid Mantle of the Skin**
by Otto Jacobi and Herbert Heinrich

37 **Aerosol Shave Creams**
by Harry Hilfer

38 **Odor Stability in Aerosols**
by R. A. Foresman and R. Pantaleoni

40 **Odor and Olfaction—Biochemical Approaches—Part One**
by Paul G. I. Lauffer, Ph.D.

42 **Oral Hygiene**
by Wm. R. Keithler

48 **The Bad Deal**
by Frazer V. Sinclair

departments

19 **Keeping Posted**
by Thomas R. Farrell

51 **Packaging and Selling**
by Frazer V. Sinclair

53 **Package Doin's**

61 **Patent Thoughts and Trends**
by Thomas Cifelli, Jr.

67 **News**
by Frank S. Child

81 **Management Forum**
by Francis Chilson

93 **Advancing Therapy**
by Milton A. Lesser

99 **Compounder's Corner**
by Milton A. Lesser

103 **Perfumer's Shelf**
by Milton A. Lesser

106 **Animal Health**
by Milton A. Lesser

109 **Abreast of the Markets**
by Frank S. Child

113 **Readers' Questions**
by Milton A. Lesser

THOMAS R. FARRELL, *Editor*
FRANK S. CHILD, *Managing Editor*
MILTON A. LESSER, *Technical Editor*
HARRY G. KELBLY, *Raw Material Editor*
FRANCIS CHILSON, *Production Consultant*
MAX FRANKEL, *Art Director*

Reprints of cover illustrations are available on request.

The Drug and Cosmetic Industry is published monthly by Drug Markets, Inc., Frazer V. Sinclair, President and Treasurer, Thomas R. Farrell, Vice-president and Secretary. Publication Address, 28 Renne Ave., Pittsfield, Mass., U. S. A. Editorial and General Office, 101 West 31st St., New York 1, N. Y., U. S. A.

Business Manager, Frazer V. Sinclair; Advertising Manager, P. W. Alexander; Advertising Representatives, Walter M. Brauneiss, C. R. Keeley; Production Manager, Katherine Hyde; Circulation Manager, Harry G. Kelbly.

Midwestern Advertising Representative: Dwight Early and Sons, 100 No. LaSalle St., Chicago 2, Telephone, CEntral 6-2184.

Subscription price $3.00 a year, in advance Foreign Countries, $5.00. Single copies, 35c; Back issues 50c. Entered as Second Class Matter, January 1, 1928 at the Post Office at Pittsfield, Mass., under the Act of March 3, 1879. Member of Audit Bureau of Circulations.

Contents Copyrighted 1954
by Drug Markets Inc.

THE TWINS THAT WIN:

Fragrance

Flavor

BOTH FOUND IN ONE PRODUCT

ZIMCO® Vanillin

The Original Lignin Vanillin

ZIMCO's outstanding excellence and uniformity of flavor are the result of its exclusive, patented manufacturing process . . . developed through years of scientific experiment and research.

Remember . . . your best source of finished, ready-to-use flavors is your flavor manufacturer. Ask him about ZIMCO, the *Original* pure Lignin Vanillin. *There's nothing finer.*

Zimco Vanillin is noted for Quality and Dependability.

Consult Your Flavor Supplier

Sterwin Chemicals INC.
SUBSIDIARY OF STERLING DRUG INC.

1450 Broadway, New York 18, N.Y.
2020 Greenwood Ave., Evanston, Ill.

WORLD'S LARGEST SUPPLIERS OF VANILLIN

Shipments direct from plant, Rothschild, Wisc.
Emergency deliveries from: Atlanta, Dallas, Evanston (Ill.). Los Angeles, Portland (Ore.), Rensselaer (N.Y.), St. Louis and San Francisco

Dedicated to Finer Fragrances!

This 10-acre plant of Verona Chemical Company is dedicated to the development and production of ever better organic chemicals for the perfume, toiletries, cosmetic, and soap industries.

Here the most modern production methods and the finest equipment are linked together with alert and experienced research and development laboratories . . . to give your products more alluring, more lasting fragrances.

Listed here are a few of the many outstanding Verona fragrances. Try them *in your present oils* and note the marked improvement.

ALDINE VERONA . . . With only ½ to ¾% you'll hit an exciting new aldehydic topnote.

RESEDALIA . . . . . To make your Lily and Lilac scents come thrillingly alive — add ½ to ¾%.

CYCLAMAL . . . . . Add up to 5% — for a cleaner, crisper impact.

CUMIN KETONE . . . . See how only ¼ to ½% added to your present floral fragrance heightens and freshens the effect.

Sole Representatives in the United States
for J. and E. Sozio, Grasse, France
Natural Absolutes • Resinoides • Essential Oils

Write for a complete list of Verona aromatic chemicals and specialties.

USE VERONA PRODUCTS TO BUILD SALES FOR *Your* PRODUCTS

AROMATICS DIVISION

26 Verona Avenue, Newark, N. J. — VERONA CHEMICAL COMPANY — 1210 Rosedale Ave., Chicago, Ill.

Strand Expands . . . by demand

Unprecedented demands made upon us by you in the industry have resulted in the expansion and relocation of STRAND COSMETICS INC.

We may now offer you the *Services* of a plant FOUR TIMES the size of our previous one including:

Greater capacity and more diversified manufacturing facilities.

Increased production facilities and flexibility

The finest quality controlled products possible

Much improved packaging facilities

You are cordially invited to visit our new plant at your convenience in order to see how these facilities may be of help to you in your present or future needs.

All inquiries are invited on your requirements for the following products *Made Under Your Label:*

Rouge	*Face Powders*
Lipsticks	*Pressed Powder*
Creams (all types)	*Cake Makeup*
Lotions	*Alcoholic Products and Liquids*

Manufacturing to the Trade Only
Individualized Service
Purity of Products Guaranteed by Products Liability Insurance

Strand Cosmetics Inc.

Louis Kronish, *President*
1167 Atlantic Ave., Brooklyn 16, N. Y. Main 2-7752
New York Office: 404 Fourth Ave., New York 16, N. Y.

TIME and PATIENCE are combined with uncompromising Florasynth skill to bring you this modern interpretation of fragrance perfection . . . with its highly desired influence in popular product appeal . . .

Florasynth LABORATORIES, INC.

CHICAGO 6 • NEW YORK 61 • LOS ANGELES 21
CINCINNATI 2 · DETROIT · DALLAS · MEMPHIS · NEW ORLEANS 12
ST. LOUIS 2 · SAN FRANCISCO 7 · SAN BERNARDINO
FLORASYNTH LABS. (Canada Ltd.) · MONTREAL · TORONTO · VANCOUVER · WINNIPEG
PRODUCTOS Y LABORATORIOS FLORASYNTH, S.A. MEXICO 11, D.F.

DOW

SHE BUYS THE *"Soothing Effect"* THAT ONLY PROPYLENE GLYCOL, U.S.P., CAN GIVE

PROPYLENE GLYCOL, U.S.P., ***gives lotions and creams a soothing and softening effect without stickiness—makes new customer favorites out of old-line products***

Propylene glycol, U.S.P., by Dow, replaces a more expensive ingredient in many creams and lotions—and makes them better products, too. This means more economy in formulation for you, more sales appeal for your product.

Propylene glycol is a very effective carrier, emollient, humectant and preservative for many types of cosmetics—lotions, creams, cold creams and sun tan preparations. And it may be safely used with all types of lotions —nonalcoholic, mildly alcoholic and even strongly alcoholic.

Want to make it better, make it for less? Better check Dow propylene glycol, U.S.P., with its unique soothing effect. For your free sample and more complete information, write to THE DOW CHEMICAL COMPANY, Midland, Michigan, Dept. OC 831G.

you can depend on DOW *CHEMICALS*

DOW

American Distilled Oils

Produced at our Brooklyn Factory

OILS

CLOVE	STYRAX	GERANIOL	PIMENTO
NUTMEG	CASCARILLA	CITRONELLOL	OLIBANUM
ORRIS LIQUID, Conc.	BALSAM PERU	OPOPONAX	SANDALWOOD
	CELERY		PATCHOULY

also LINALOOL • CITRAL • EUGENOL • RHODINOL

RESIN LIQUIDS

OLIBANUM	ORRIS	STYRAX
LABDANUM	BENZOIN	BALSAM PERU
OPOPONAX	TONKA	BALSAM TOLU

Essential Oils • Aromatic Chemicals • Perfume Materials • Colors

69 *Years of continuous quality service — suppliers and manufacturers of*

Essential Oils • Aromatic Materials • Flavors • Colors

GEORGE LUEDERS & CO. NEW YORK GL REGISTERED TRADE MARK

GEORGE LUEDERS & CO.

427 WASHINGTON ST., NEW YORK 13, N. Y.

Chicago • San Francisco Montreal • Philadelphia • Toronto

Established 1885

Hoya Carnosa is in a class by itself–

So are **DREYER** Synthetic Scents

The waxen flowers of *Hoya Carnosa* have something rare and fragrant.

Their perfume is memorable. It has its own distinction. Nature does not duplicate it.

You can't get it even from Dreyer . . . which is so adroit in re-creating even the subtlest natural flower odors.

And a Dreyer Floral Essence—besides having the unique characteristics of the natural flower perfume—seems to have greater power to last—with more uniformity, too.

So the quality you want is always kept high, and the costs you must watch are kept low. Send today on your letterhead for free samples.

FLAVORS
ESSENTIAL OILS
AROMATIC CHEMICALS

depend on *Dreyer* **for**

P. R. DREYER, Inc. 601 WEST 26th STREET, NEW YORK 1, N. Y.

THERE'S *Design*

IN FRAGRANCE TOO!

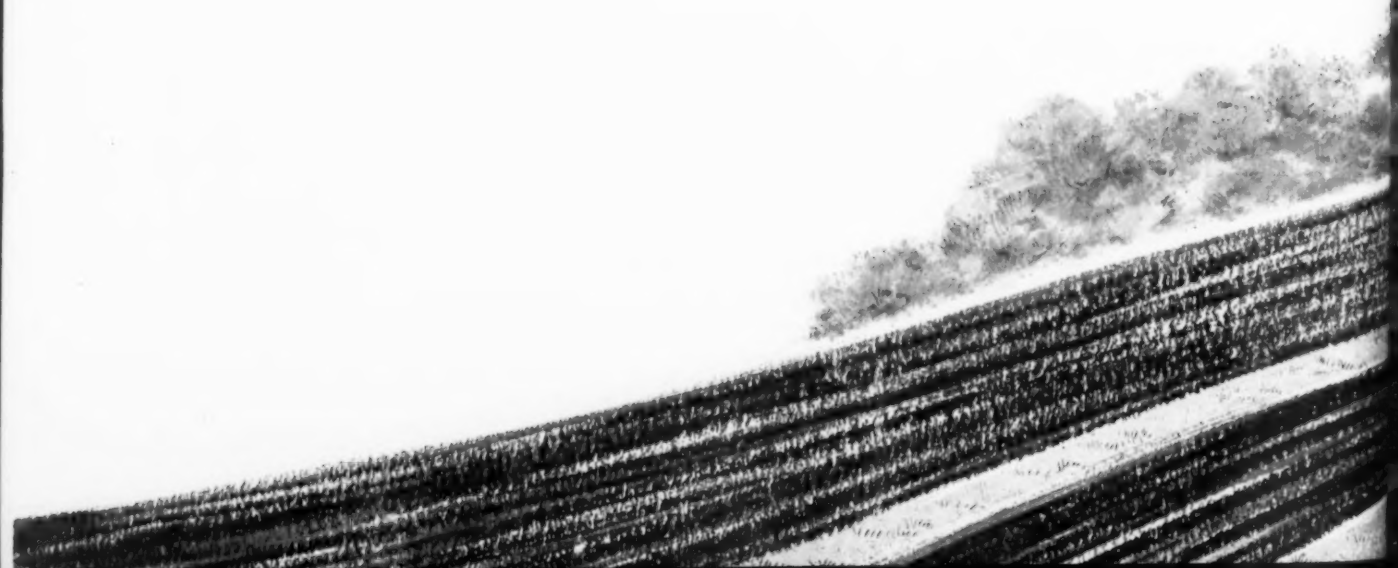
In planning any new fragrance, be it for a fine perfume or as a cosmetic fragrance, it should be well planned as to style and price, taking into consideration the market, the name, the package, the promotion.

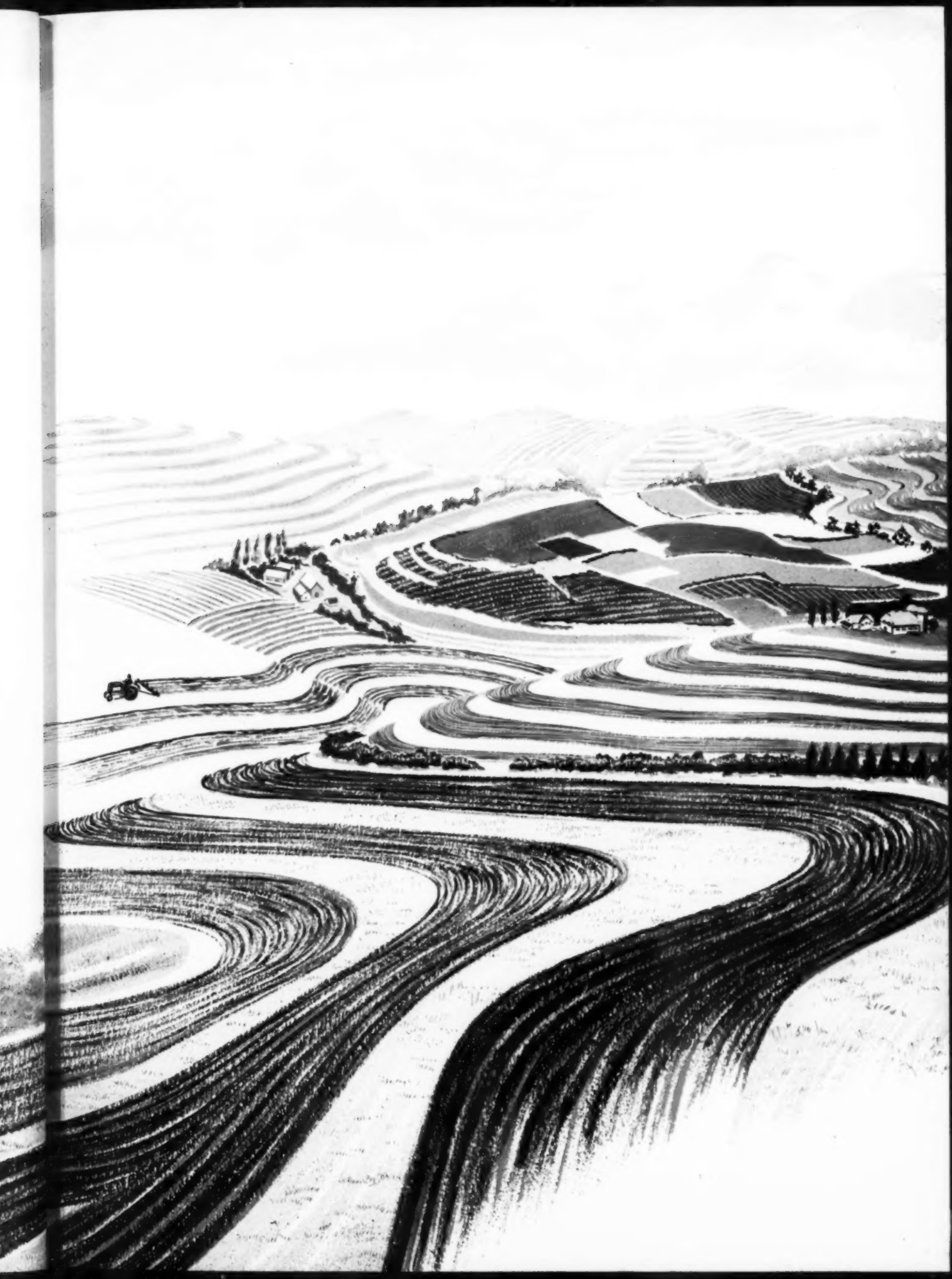
In this phase of perfume design, the staff of van Ameringen-Haebler, Inc. is skilled and experienced, as well as in the artistic and technical qualifications for which they are recognized.

MANUFACTURERS AND CREATORS OF THE FINEST PERFUME MATERIALS

van Ameringen · Haebler, Inc.

521 WEST 57th STREET NEW YORK 19, N. Y.





TECHNICAL HELP ON COLOR FORMULAS

For many years we have been helping manufacturers of pharmaceuticals and proprietaries to achieve distinctive color in their tablets, powders, ointments and many other medicinals.

If you are formulating a new color or re-formulating an existing shade, our Laboratories can render very practical assistance. They are staffed with technicians having a precise knowledge of Certified Color technology and regulations as well as a clear understanding of the pharmaceutical industry's requirements.

We will welcome the opportunity to work with you on color formulas. Confidentially, of course.

National
CERTIFIED COLORS

CERTIFIED COLOR DIVISION
NATIONAL ANILINE DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 RECTOR STREET, NEW YORK 6, N. Y.

Allied Chemical

The Fifth* Sense

(Olfactive sense)

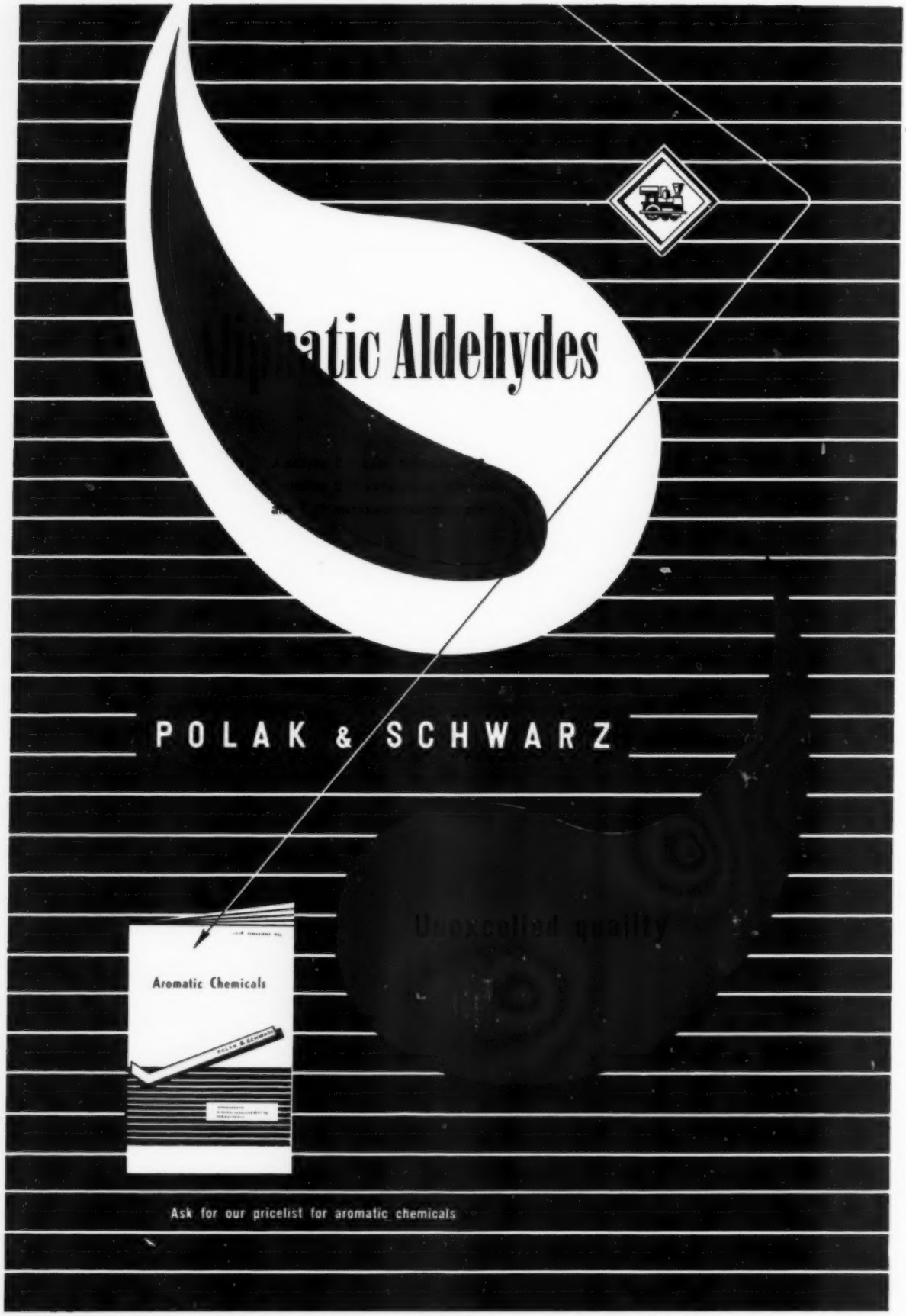
Since 1768, or nearly 200 years, the House of Chiris has dedicated itself to the Fifth Sense—the olfactive sense. In the development of Essential Oils, Floral Absolutes, Chemical Isolates, Synthetic Chemicals, and all of those creations and specialties which combine industrial aromatics with natural products and produce fragrance, the House of Chiris has a cherished history. Today Chiris maintains laboratories headed by experienced olfactive chemists who have available to them not only the "know how" of generations of Chiris chemists but also the research facilities of three continents and four modern laboratories located in: FRANCE—GRASSE & PARIS; GREAT BRITAIN —LONDON; BRAZIL—SAO PAULO and NEW YORK CITY. Whether Essential Oils, Isolates, or combinations thereof, are used as fragrance constituents by the perfumery, soap, cosmetics, or allied industries, we are happy to be consulted.

ANTOINE CHIRIS CO. INC.

220 East 23rd Street, New York 10, N. Y.

GRASSE • PARIS • LONDON • SAO PAULO

* *Chemical Senses, page 1, Moncrief—lists senses as follows: "sight, hearing, touch, taste, smell." Note smell is listed Fifth.*



Polak & Schwarz Inc., 667 Washington Street, New York - 14 (N.Y.)

CASE HISTORY

Another tough problem solved by an Emery Product

How Emersol® Stearic Acid Eliminated Rancidity in Hand Cream— AT NO EXTRA COST!

To have rancidity in cosmetics is unthinkable. That's why this manufacturer of hand cream changed from an ordinary triple-pressed stearic acid to Emersol 132 Lily Stearic Acid...to obtain maximum oxidation stability. Not only was his product fresher and sweeter from the first, but it stayed that way longer.

Because Emersol 132 costs no more than competitive triple-pressed grades, this increased shelf life, this extra sales appeal cost him nothing.

Whatever you make, cosmetics or entirely unrelated products, the resistance to rancidity of all Emersol Stearic Acids carries over to your finished product. This, coupled with the outstanding color stability and oxidation resistance inherent in Emersol Stearic Acids, will make your product better, stay better longer, and...easier to sell. Since they cost no more than ordinary grades, next time...everytime...it will pay you to buy Emersol Stearic Acids!

Write to Dept. D-7 for the complete story on Emersol Stearic Acids

Emery

Fatty Acids & Derivatives
Plastolein Plasticizers
Twitchell Oils, Emulsifiers

Emery Industries, Inc., Carew Tower, Cincinnati 2, Ohio

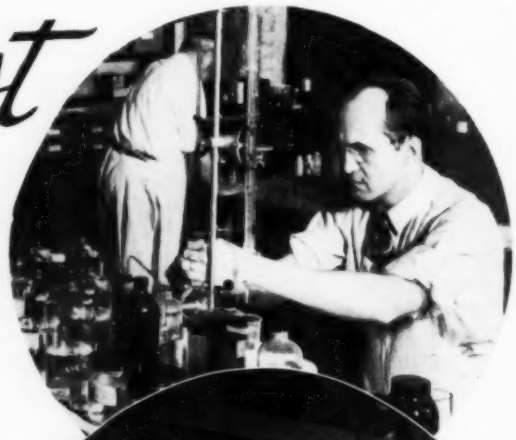
New York • Philadelphia • Lowell, Mass. • Chicago • San Francisco
Cleveland • Ecclestone Chemical Co., Detroit
Warehouse stocks also in St. Louis, Buffalo, Baltimore and Los Angeles
Export: 5035 RCA Bldg., New York 20, New York

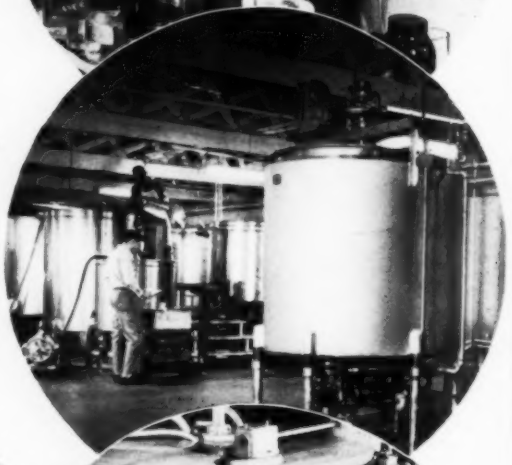
What Does Emersol Mean?

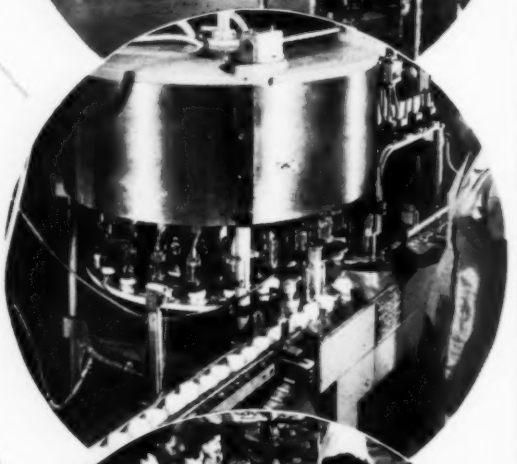
Emersol, a contraction of the words "Emery" and "Solvent", describes Emery's exclusive process of solvent separation of fatty acids. Of more significance, however, is its meaning in terms of product performance. Because of this unique process, the use of automatic controls and of corrosion-resistant metals throughout, Emersol Stearic and Oleic Acids are purer, more uniform, of "controlled" composition, and freer from metal contamination and other impurities that promote oxidation, rancidity and yellowing.

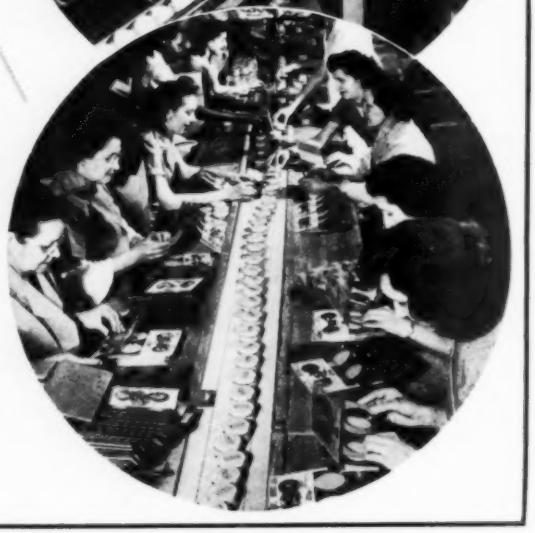
Because all these advantages reflect in finished products, to you, Emersol actually means better products ...products that stay better longer...products that sell easier.

For Lower Cost COSMETIC PRODUCTION









IN the highly competitive cosmetic merchandising field, it is well for the cosmetic manufacturer-distributor to explore every possible means of reducing costs.

For example, what are the facts as to costs, advantages and safeguards in entrusting all or certain parts of your production, warehousing and distribution to a private brand manufacturer?

Specifically, what might you gain if you should do this:

Let KOLAR do Your Manufacturing

1. Controlled High Quality of Product

Our chemical testing of raw materials, in-process and finished products assures you purity and uniformity to your formula.

2. Controlled Low Production Costs

Automatic and semi-automatic machines and skilled production lines, all scheduled for full-time operation, cut unit costs to the bone.

3. Lower Distribution Costs

Our location is ideal for shipping at lowest rates . . . also for quantity buying of all materials at lowest delivered prices.

4. Completely Confidential Service

Kolar's part in your manufacturing is never divulged. We ship under your labels. And your formula secrets are scrupulously protected.

5. Additional Profit Advantages

You have less capital tied up in plant and equipment . . . less payroll for cosmetic chemists and other specialists . . . less administrative and personnel problems . . . consequently, more resources for hard, profitable selling.

Get the Facts and Figures **relating to our manufacture, in whole or in part, of one or more of your cosmetics. Address your inquiry, in strict confidence and without obligation, to Pres. George G. Kolar.**

KOLAR Laboratories, Inc.

7475 North Rogers Avenue • Chicago 26, Illinois

PRIVATE BRAND COSMETIC SPECIALISTS SINCE 1910

Harvesting the flowers

OILS OF

Lavender

AND

Lavandin

FROM OUR

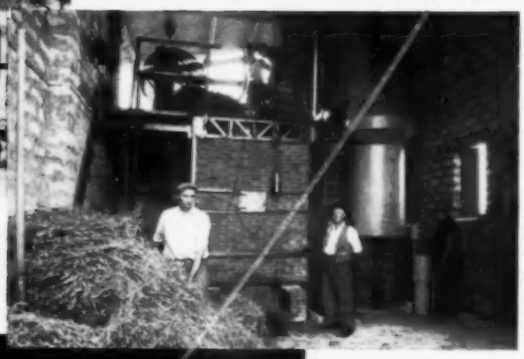
REVEST PLANT

BASSES-ALPES, FRANCE

Bringing the harvest to the distillery

Loading the flowers into the stills

Distillation in process



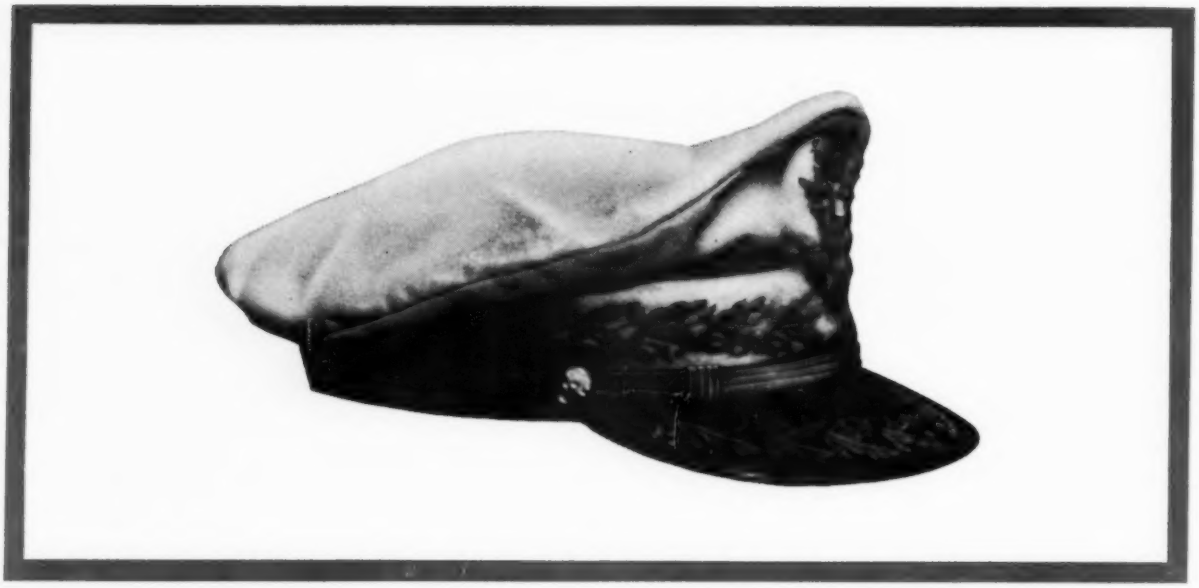
Bertrand Freres offers an entire range of floral absolutes, resinoids and essential oils. We welcome your inquiries on any specific product or process.

Removing the spent flowers from the stills

B F TRADE MARK

Bertrand Frères, Inc.

443 FOURTH AVENUE NEW YORK 16, NEW YORK



SOME OLD DRUGS NEVER DIE..
or even fade away

For example—POTASSIUM IODIDE has stood the test of time; a reliable old standby still recognized as the principal source of iodine when this drug is indicated in:

cough therapy • goiter prophylaxis and therapy •
wound healing • rheumatic infections • tertiary syphilis •
thyrotoxicosis • syphilitic aortitis •

specify–

NYQ POTASSIUM IODIDE U.S.P. NYQ

- Crystalline
- Granular
- Powder

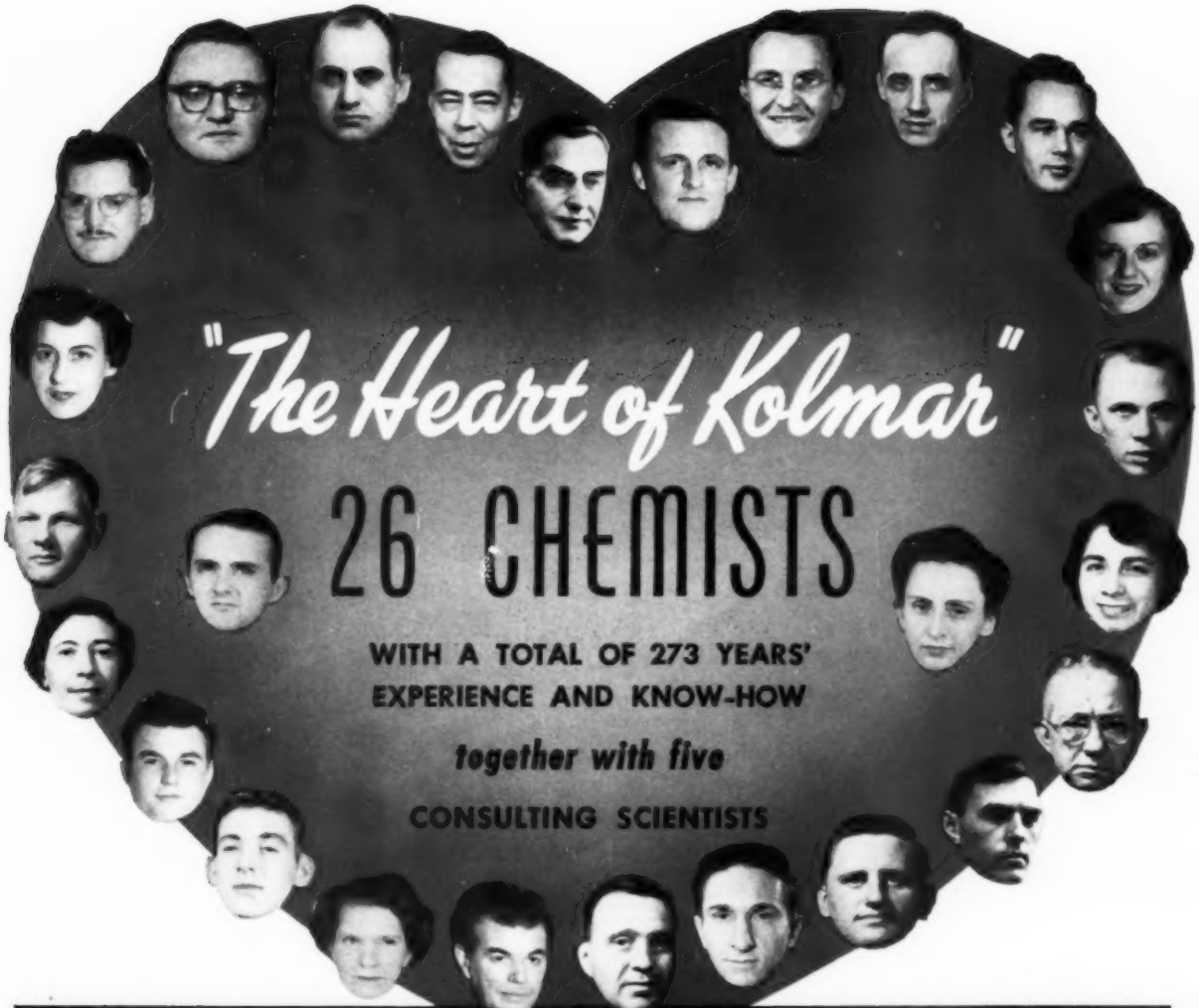
NYQ specifications for POTASSIUM IODIDE easily meet, *even exceed* U.S.P. standards. Samples and quotations Furnished on Request.

NYQ®

THE FULL LINE FINE CHEMICAL HOUSE

The NEW YORK QUININE & CHEMICAL WORKS, Inc.

GENERAL OFFICES: 50 CHURCH STREET, NEW YORK 8, N. Y. 729 WEST DIVISION STREET, CHICAGO 10, ILL.


"The Heart of Kolmar"
26 CHEMISTS
WITH A TOTAL OF 273 YEARS' EXPERIENCE AND KNOW-HOW
together with five
CONSULTING SCIENTISTS

KOLMAR LEADERSHIP IS THE RESULT OF SPECIALIZED SKILL!

♥ The "Heart of Kolmar" provides continuous creative research and thorough testing at every step of the manufacturing process . . .

♥ It provides the control of quality from raw material to finished product . . .

♥ It has given Kolmar product superiority and uniformity, combined with favorable price . . .

♥ It has enabled Kolmar to develop many of the best known products in the cosmetic field . . .

♥ It constantly works for the improvement of existing methods and formulae, and the development of new ones.

♥ It has won Kolmar recognition *as America's Leader in Private Label Cosmetics.*

The customer's rights in the formula under which he operates is always respected by Kolmar. Consultation will not obligate you and there's a Kolmar Laboratory or Representative near to give you prompt service at all times.

•

Kolmar Products include Lipstick, Dry and Cream Rouge, Loose Face Powder, Cake Make-Up, Compact Powder, Foundation Creams, Liquid Make-Up, Eye Shadow, Mascara, Lotions, Colognes, Perfumes and other cosmetics.

•

REPRESENTATIVES: DOUGLAS HAGGERTY; THOMAS LA PRELLE, EASTERN SALES MANAGER, EMPIRE STATE BLDG., ROOM 605, NEW YORK, N Y.; WARREN M. CURRY, 599 PLUM ST., N.W., ATLANTA, GA.; NORMAN L. KOLE, 505 NORTH LA SALLE ST., CHICAGO, ILL.; J. C. WEILER, 8003 FORSYTHE BLVD., ST. LOUIS 5, MO.; R. F. G. BYINGTON, 1260 N. WESTERN AVENUE, LOS ANGELES, CALIF.; RICHARD F. SPICKER, 419 W. FIFTH ST., CINCINNATI, OHIO; ELMER J. SCHWARTZ, 10016 EAST 35TH TERRACE, KANSAS CITY 3, MO.

Kolmar LABORATORIES

MILWAUKEE 2, WISCONSIN

PRIVATE LABEL COSMETICS EXCLUSIVELY

KOLMAR COSMETIC SPECIALTIES, INC. (complete package division) • KOLMAR INTERNATIONAL, INC. • WICKHEN PRODUCTS, INC.

PLANTS IN PORT JERVIS, NEW YORK; TWO PLANTS IN MILWAUKEE, WIS., AND ONE IN HOLLYWOOD, CALIF.
CANADA: KOLMAR WILCKENS, LTD., PLANT IN BARRIE, ONTARIO; OFFICE: 205 YONGE ST., TORONTO, ONT.
AUSTRALIA: KOLMAR (AUST.) PTY. LIMITED, 494 KENT ST., SYDNEY; KOLMAR EUROPE: PARIS, FRANCE

LAUTIER FILS

"A Standard of Quality Since 1795"

GRASSE, FRANCE

Essential Oils

Natural Flower Absolutes

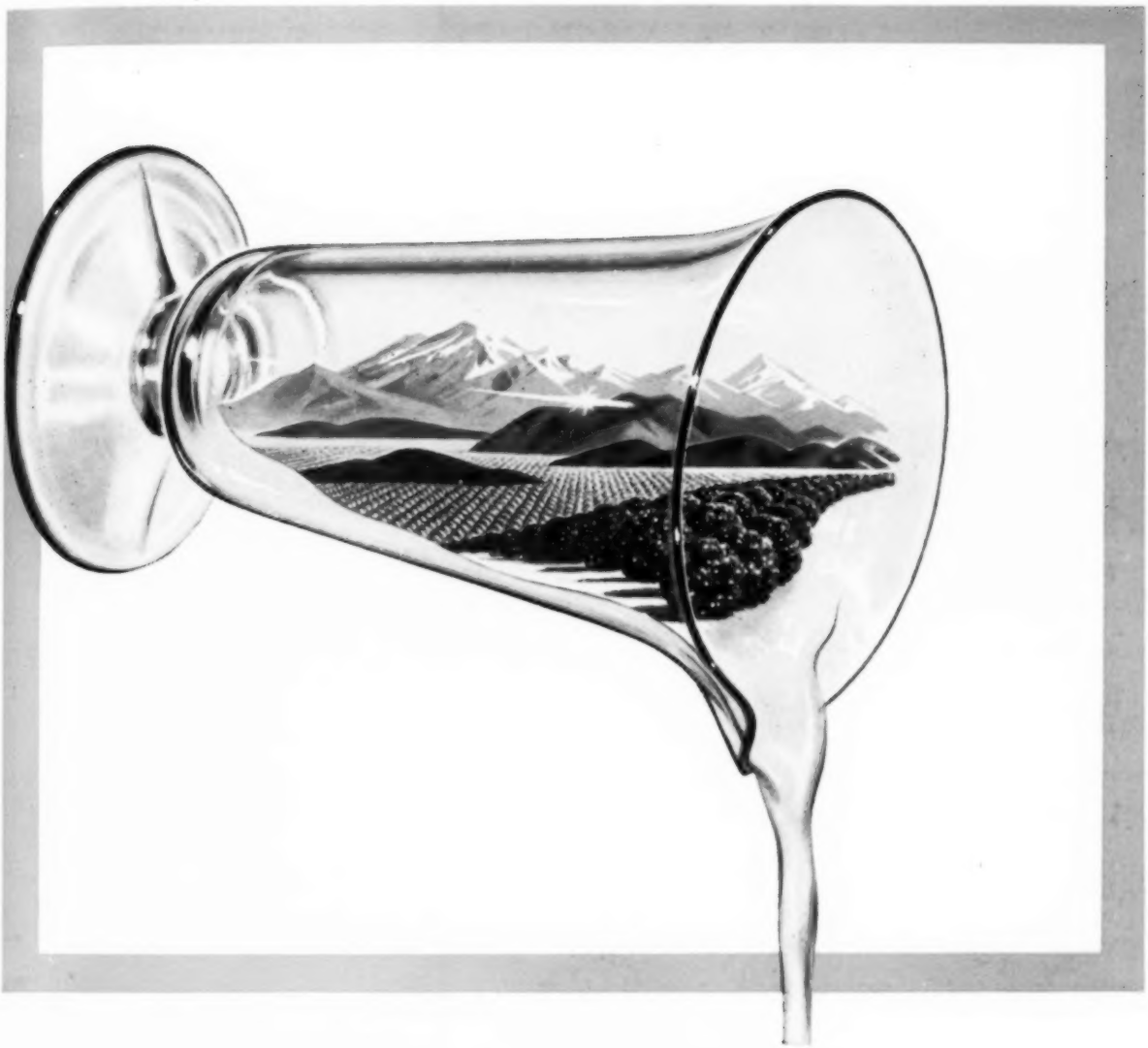
Concentrated Natural Fixatives

Synthetic Aromatics

LAUTIER FILS, INC.

321 Fifth Avenue, New York 16, N. Y. • 874 North Wabash Avenue, Chicago, Ill.

GRASSE PARIS LONDON BEYROUTH ST. LOUIS SANTIAGO



THE LEADING ORANGE OIL WITH CALIFORNIA FLAVOR

There's a reason for the growing popularity of Exchange Oil of Orange. Only Exchange Brand combines the flavor and aroma of California oranges with *Exchange* quality. Carefully selected oranges from the famous California groves of Sunkist Growers are processed to scientific specifications in modern California plants. You receive distinctive flavor and fragrance... in addition to unmatched uniformity of strength.

Sunkist Growers
PRODUCTS DEPARTMENT • ONTARIO, CALIFORNIA

Produced by
The Exchange Orange Products Co.
Ontario, California

Distributed in the U. S. exclusively by
FRITZSCHE BROTHERS, INC.
76 Ninth Ave., New York 11, N. Y.
DODGE & OLCOTT, INC.
180 Varick St., New York 14, N. Y.

Exchange
OIL OF ORANGE U. S. P.

Prized for its warm, earthy odor and exceptional fixative properties, ambergris has long been sought in its natural state and used in perfumes, even in old-time cookery. Until now, it has defied analysis and reconstruction, but patient research and the approach by the avenue of pure science has unlocked its secret and in Fixateur 404 Firmenich achieves the synthesis of an olfactive element of ambergris. Of the highest fidelity, stability and solubility, Fixateur 404, even in minute percentages, gives greater warmth and depth to perfumes, extracts, soaps or powders . . . enhances the lingering effect on the skin . . . extends the shelf life of your products. Technical data and samples available on request.

FIRMENICH & CIE.
SUCCESSEURS DE
CHUIT, NAEF & CIE.
GENEVE SUISSE

FIRMENICH INCORPORATED

250 WEST 18TH STREET • NEW YORK 11

CHICAGO OFFICE: 612, NORTH MICHIGAN AVE.

FIRMENICH OF CANADA, LIMITED, 348 WALLACE AVE. • TORONTO

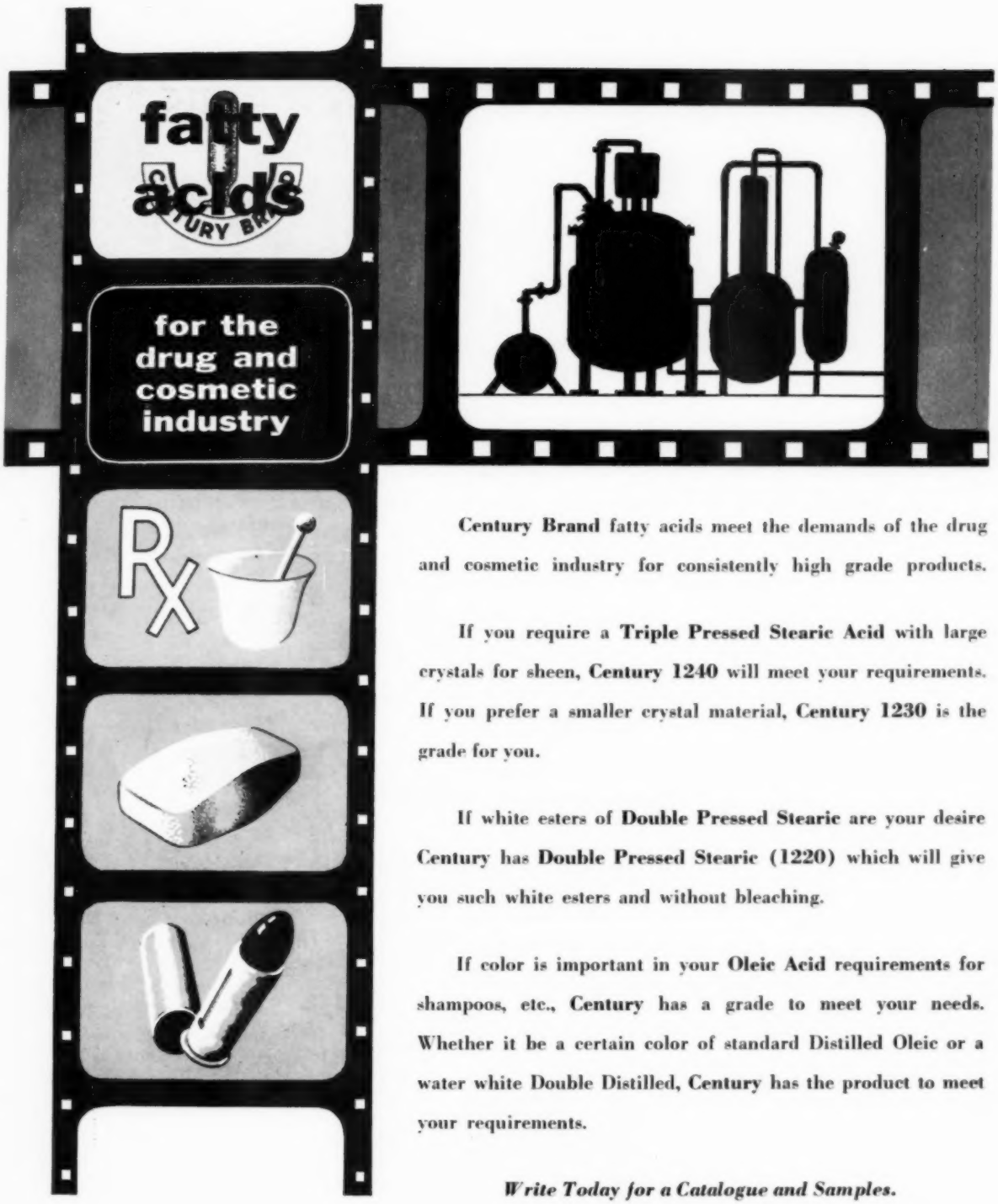
GENEVA • PARIS • LONDON

FIRMENICH UNLOCKS A SECRET OF THE SEA

FIXATEUR 404

the synthesis of an olfactive element of ambergris

E.
E.
YORK 11
AN AVE.
AVE. + TORONT
gris



Century Brand fatty acids meet the demands of the drug and cosmetic industry for consistently high grade products.

If you require a **Triple Pressed Stearic Acid** with large crystals for sheen, **Century 1240** will meet your requirements. If you prefer a smaller crystal material, **Century 1230** is the grade for you.

If white esters of **Double Pressed Stearic** are your desire **Century** has **Double Pressed Stearic (1220)** which will give you such white esters and without bleaching.

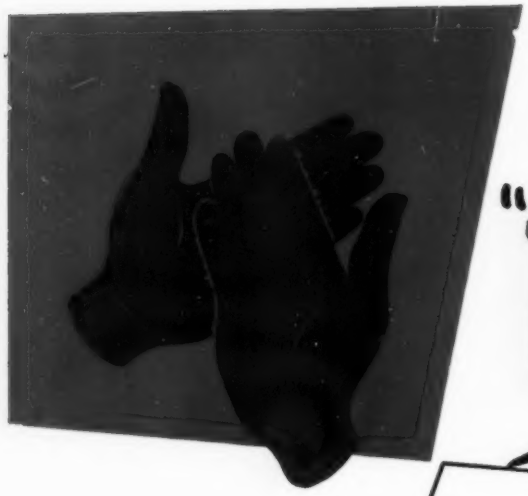
If color is important in your **Oleic Acid** requirements for shampoos, etc., **Century** has a grade to meet your needs. Whether it be a certain color of standard Distilled Oleic or a water white Double Distilled, **Century** has the product to meet your requirements.

Write Today for a Catalogue and Samples.

W. C. HARDESTY CO., Inc.

Century Stearic Acid Products, Inc.

25 MAIN STREET, BELLEVILLE 9, NEW JERSEY
PLANT: DOVER, OHIO
In Canada: W. C. Hardesty Co. of Canada Ltd., Toronto



LET'S GET DOWN TO "Essentials"

Felton Quality Control starts right back at the prime source. That's why discriminating users consider the Felton Essential Oils listed here always the best dollar values offered.

- ☐ Almond
- ☐ Anise
- ☐ Bay
- ☐ Bergamot
- ☐ Birch
- ☐ Bois de Rose
- ☐ Cananga
- ☐ Cassia
- ☐ Cedarleaf
- ☐ Cedarwood
- ☐ Cherry Laurel
- ☐ Cinnamon
- ☐ Citronella
- ☐ Clove
- ☐ Copaiba
- ☐ Coriander
- ☐ Eucalyptus
- ☐ Geranium
- ☐ Grapefruit
- ☐ Guaiacwood
- ☐ Labdanum
- ☐ Lavandin
- ☐ Lavender
- ☐ Lemon
- ☐ Lemongrass
- ☐ Limes
- ☐ Orange
- ☐ Patchouly
- ☐ Peppermint
- ☐ Petitgrain
- ☐ Pimenta
- ☐ Rosemary
- ☐ Sage
- ☐ Sandalwood
- ☐ Spike
- ☐ Spearmint
- ☐ Thyme
- ☐ Vetivert
- ☐ Wintergreen
- ☐ Ylang Ylang

GET IN TOUCH WITH US NOW FOR LATEST QUOTATIONS!

AROMATICS • PERFUME BASES • ESSENTIAL OILS

FELTON CHEMICAL COMPANY, INC.
599 Johnson Ave., Brooklyn 37, N. Y.

PLANTS: Brooklyn, N. Y. • Los Angeles, Cal. • Montreal, Que. • Versailles (S&O) France
SALES OFFICES: Atlanta • Boston • Chicago • Cleveland • Philadelphia
St. Louis • Toronto
Stocks Carried in Principal Cities

"The boss wants us to develop what he calls a 'Chameleon' make-up line. The colors would change according to the lady's mood or surroundings."

Keeping Posted

Triple Damages Asked in Fair Trade Suit

A new angle to bring about maintenance of fair trade minimums comes to light in the suit of Sunbeam Corporation filed in Federal District Court in Baltimore, and asking for $750,000 triple damages from Masters, Inc., for violation of the Sherman Act. Sunbeam charges that Masters, in shipping cut-priced merchandise into fair trade states, is tending to create a monopoly in the retail field in violation of the Sherman Act. Masters moved into the District of Columbia in March, 1954, according to Sunbeam, and it is claimed that the purpose of locating in the District of Columbia, a non-fair trade area, was to make possible violation of the fair trade laws in all fair trade states. Sunbeam charges that Master mails thousands of its catalogs, listing fair trade prices together with Masters prices, into fair trade states.

Sunbeam claims that Masters, in offering fair trade merchandise at less than fair trade prices, tends to drain off business from dealers in all fair trade states, and thus concentrates an unduly large share of business in the affected products in the hands of Masters. This is in violation of the Sherman Act, it is charged, because Masters' selling policy tends to create that kind and degree of monopoly which falls under the condemnation of the Sherman Act.

Ten Years of Streptomycin

Ten years after the discovery of streptomycin in 1944, the tenth anniversary of the drug was celebrated at Rutgers University with the dedication of a new Institute of Microbiology, costing more than $3,500,000, and made possible by royalties from the manufacture of streptomycin. Dr. Selman A. Waksman, winner of the Nobel Prize in medicine and physiology in 1952 for his discovery of this drug, and first director of the new Institute, discovered streptomycin in an obscure and crowded laboratory at Rutgers. After the product had been marketed and had been proven an important contribution to medicine, Dr. Waksman assigned 80 per cent of the royalties on the drug to the Rutgers Research and Endowment Foundation.

Morris Fishbein, writing in Postgraduate Medicine for June, said: "The effectiveness of streptomycin against tuberculosis has been fully demonstrated, and the most spectacular results have been obtained in its use against miliary tuberculosis, tuberculosis meningitis, and laryngeal, bone and joint tuberculosis. Recent reports indicate greatest usefulness when treatment also includes para aminosalicylic acid and various forms of isonicotinic acid hydrazide. The supplementary use of these compounds lowers the toxicity of streptomycin and retards the development of resistance to the drug. "The production of streptomycin is now in excess of $100,000,000 annually. In the United States during 1953 nine companies produced between 15 and 20 million grams a month."

FTC and FDA Draft Agreement

The Federal Trade Commission and the Food and Drug Administration, through the chairman of the Commission and the Secretary of Health, Education and Welfare, have announced approval of a working agreement between the two agencies. The objective is to correlate more effectively the work of the Commission and the FDA and to prevent overlapping activities and duplication of effort.

While the agreement does not seem to present anything startling, nor anything that would not be considered normal procedure under the circumstances, it does reduce the procedure to writing. The things agreed upon are:

(1) The Federal Trade Commission has primary responsibility with respect to the regulation of the truth or falsity of all advertising (other than labeling) of foods, drugs, devices, and cosmetics. In the absence of express agreement between the two agencies to the contrary, the Commission will exercise sole jurisdiction over all matters regulating the truth or falsity of advertising of foods, drugs, devices, and cosmetics;

(2) The Food and Drug Administration has primary

Vitamin E

and "preemies" . . .

Says one team of investigators: We are born low in vitamin E and make up the deficiency from our mothers' milk. If we are born too soon and have, therefore, to be fed with unnatural fluids, the scanty vitamin E in our blood declines even further.

Says another team: Premature infants are not particularly deficient in vitamin E.

Says a French obstetrician who has given concentrated attention to the subject: To reduce vascular fragility in the premature, give large doses of α-tocopherol during labor to women who are giving birth prematurely.

Says a pediatric research man: Vitamin E blood level in the prematurely born does not start rising for two months after birth, whereas full-termers start building up their vitamin E within five days.

Says a Spanish pediatric paper: Vitamin E stimulates all functions which are slowed or absent because of prematurity.

Says a survey in a journal of nutrition: Large doses of vitamin E administered to premature infants may be an important factor in preventing retrolental fibroplasia (a blindness of "preemies").

Says a more recent paper by a California researcher: Nobody knows the cause of retrolental fibroplasia, and neither vitamin E, ACTH, nor mothers' milk has prevented it. Avoid premature delivery, if possible.

Such are some of the voices and some of the leads to future research. We do not presume to say who is right, nor is it our business to offer clinical recommendations. We go on making vitamin E for the ever-growing demands of the pharmaceutical industry. We sell it in bulk only, as distilled concentrates of *d*-alpha-tocopheryl acetate, pure crystallized *d*-alpha-tocopheryl acetate, or as distilled mixed tocopherols. We'll be happy to advise on formulation problems, make a quotation, and ship from stock. ***Distillation Products Industries,*** Rochester 3, N. Y. Sales offices: New York and Chicago • W. M. Gillies and Company, Los Angeles and San Francisco • Charles Albert Smith Limited, Montreal and Toronto.

leaders in research and production of vitamin E

DPi

Also . . . vitamin A . . . distilled monoglycerides . . . more than 3500 Eastman Organic Chemicals for science and industry

Distillation Products Industries *is a division of* **Eastman Kodak Company**

responsibility for preventing misbranding of foods, drugs, and devices, and cosmetics shipped in interstate commerce. In the absence of express agreement between the two agencies to the contrary, the Food and Drug Administration will exercise sole jurisdiction over all matters regulating the labeling of foods, drugs, devices, and cosmetics;

(3) The initiation of proceedings involving the same parties by both agencies simultaneously shall be restricted to those highly unusual situations where it is clear that the public interest requires two separate proceedings. For the purpose of avoiding duplication of work and to promote uniformity and consistency of action in areas where both agencies have a concern and the actions of one agency may affect proceedings by the other, it is recognized that such liaison activity is required,

In instances where:

(a) The same, or similar, claims are found in both labeling and advertising;

(b) written, printed or graphic material may be construed as either advertising or as accompanying labeling, or both, depending upon the circumstances of distribution;

(c) the article is a drug or device and appears to be misbranded solely because of inadequacy of directions for use appearing in the labeling for conditions for which the article is offered in advertising generally disseminated to the public.

Pfeiffer Stock in Warner-Hudnut Sold

The end of the ownership of the Pfeiffer family in Warner-Hudnut, Inc., occurred last month when American Drug Products, Inc., contracted to purchase 558,411 shares of the common stock of the corporation, representing 44.5 per cent of such stock, from the trustees of the estate of Gustavus A. Pfeiffer. American Drug Products, Inc., was organized by F. Eberstadt & Co., and Lazard Freres & Co. and associates. In addition to Ferdinand Eberstadt, who is a member of the board, three other representatives of the purchasers will join the Warner-Hudnut, Inc., board of directors.

Doctors Cannot Dispense in Mass.

The Governor of Massachusetts signed into law last month a bill which amends the prescription sections of the Massachusetts Food and Drug Law. The most notable feature of this law is that under its provisions it is now illegal for a pharmacist to prescribe and for a doctor to dispense any harmful drug. The law defines a harmful drug as one which bears the words "Caution — Federal law prohibits dispensing without a prescription."

The doctor and pharmacist limitations are clearly stated as follows:

"No person shall sell or offer for sale at retail or dispense or give away any harmful drug to *any* person other than a physician, dentist or veterinarian, except upon oral or written prescription. . . ." "A physician, dentist or veterinarian may *personally administer* any harmful drug at such time and under such circumstances as he, in good faith, and in the legitimate practice of medicine, believes to be necessary for the alleviation of pain and suffering or for the treatment or alleviation of disease."

The doctor exemption provision is identical in intent and wording to the Massachusetts narcotic law exemption for doctors.

Smith, Kline & French Get AMA Award

Smith, Kline & French Laboratories are the recipients of the first award ever made by the American Medical Association to a commercial house. This award was a special citation presented by the AMA to the pharmaceutical house for "pioneering use of television in bettering the health of the nation." In a presentation ceremony at the House of Delegates meeting at the Palace Hotel, San Francisco, late last Month, Dr. Walter B. Martin, Norfolk, Va., new president of the AMA, conferred the citation upon Francis Boyer, SKF president. The citation, inscribed on a plaque, reads:

"The American Medical Association takes pleasure in presenting this citation to Smith, Kline & French Laboratories for pioneering use of television in bettering the health of the nation.

"Through color television programs for the doctors, you have contributed immeasurably to increasing medical knowledge.

"Through your 'March of Medicine' programs, you have portrayed to the public the vital role of the doctor—both in the research laboratory and in his treatment of the sick.

"Because of these outstanding contributions to medicine, you have proved yourself deserving of this special recognition."

The award was made on the fourth day of the AMA annual meeting at which a week-long program of color telecasts had been produced and sponsored by SKF for the 12,000 attending physicians.

Fair Trade Upheld on Prescriptions

Pharmaceutical products which must be sold on a doctor's prescription are covered by the present Fair Trade Laws in the opinion of Judge J. Skelly Wright of the U. S. District Court in New Orleans. In a suit brought by Hoffmann-La Roche, Inc., against Schwegmann Brothers Giant Super Markets in New Orleans, this momentous decision was handed down.

This decision means, if it is followed by other courts and sustained on possible appeal, that the Fair Trade Acts are not restricted to drug products sold over the counter, but apply with equal force to drugs used to fill prescriptions even though the labels or trade-marks are removed by the pharmacist. If a customer specifically requests a named pharmaceutical product which is fair-traded and trade-marked, the pharmacist must comply with the Fair Trade Laws in determining the price of the product even though he may have removed the trade-mark or label in filling the prescription.

Excerpts from Judge Wright's opinion:

"Upon specific request for a named Fair Traded, trade-marked product, the trade-mark owner's good will is involved and a retail seller may not then remove the trade-mark and thereby avoid liability under the Fair Trade laws."

ATLAS chemical digest

CHEMICALS DEPARTMENT
Atlas Powder Company
Wilmington 99, Delaware

Atlas Powder Co., Canada, Ltd.
Brantford, Canada

How the HLB System simplifies selection of emulsifiers

Choosing an emulsifier for a particular application is a time-consuming job. Much of the trial-and-error usually necessary can be eliminated, however, through the use of the HLB System developed by Atlas.

This system classifies surface active agents numerically, according to the relative strength and size of the hydrophilic (water-loving) and lipophilic (oil-loving) groups that make up the surfactant molecule. Specific numerical values of HLB have been assigned to each Atlas surfactant, ranging from 1 to 20.

The lower the HLB number, the more "oil-loving" is the emulsifier; the higher the HLB, the greater the affinity for water. Those emulsifiers in the HLB range of 1-9 tend to be oil-soluble, while those in the range above 11 tend to be water-soluble.

Similarly, "required HLB" values have been determined for various oils, waxes and other cosmetic and pharmaceutical constituents (see table for values of typical materials). By matching the HLB number of a surfactant or surfactant-blend with that calculated from the table for a mixture of oil phase constituents, the formulator can quickly narrow his choice to a comparatively small number of surfactants for trial. His area of trial-and-error is immediately reduced to a fraction of that which exists when the problem is not systematized.

Atlas HLB Selector

"REQUIRED HLB" Values

	W/O Emul.	O/W	Solubilizing (O/W)
Acid, stearic	—	17	—
Alcohol, cetyl	—	13	—
Lanolin, anhydrous	8	15	—
Oil			
Cottonseed	—	7.5	—
Essential	—	—	16.5
Mineral, heavy	4	10.5	—
Mineral, light	4	10-12	15.5
Vitamin (with fats or oils)	—	—	15
Vitamin (fat free)	—	—	16.5
Petrolatum	4	10.5	—
Vitamins			
Esters	—	—	14
Wax			
Beeswax	5	10-16	—
Microcrystalline	—	9.5	—
Paraffin (household)	4	9	—

HLB values are additive. For example, if a blend is made of three parts of an emulsifier with HLB of 8, plus one part of another emulsifier with HLB of 16, the HLB of the mixture is calculated by adding three-quarters of 8 to one-quarter of 16.

The "required HLB" of an emulsion is calculated in a similar manner. The contribution of each constituent of the oil phase is calculated by multiplying its "required HLB" by the percentage of that constituent in the oil phase. The net HLB is then obtained by adding these numbers together.

A detailed step-by-step HLB system procedure is available from Atlas in their booklet "A Guide to Cosmetic and Pharmaceutical Formulation," which will be sent to emulsion technologists requesting it on their company letterhead.

Another aid for the emulsion formulator is the dial-type HLB Selector pictured at left. This handy device indicates recommended Atlas surfactants and HLB values for 96 typical emulsion formulas. We'll be glad to send a Selector with directions, to anyone concerned with the preparation of emulsions.

"Awareness by the customer of the name of the drug in his prescription is not an essential factor in determining whether or not the trade name of the manufacturer is utilized in selling a Fair Traded product. The good will established in prescription drug trade-marks, brands and names is inseparably bound with prescriptions which physicians write for their patients."

"The mere removal by the defendants, at the time of sale to a consumer, of the trade-marks, labels, brands or name of the manufacturer is no defense to an action for contempt where the sale is made at less than the legally established Fair Trade price, after receipt of an order for the product by specific trade name; and such action violates an injunction which enjoins the defendants from selling commodities of the manufacturer 'bearing the trade-marks, labels, brands or name' of the manufacturer. It is not essential, under such circumstances, that the product or container physically bear the trade-mark, label, brand or name of the manufacturer at the moment of delivery."

Pharmaceutical Council Adds Donahue

The National Pharmaceutical Council's organization is being completed. The latest addition to the personnel of the Council is John E. Donahue, regional attorney for the U. S. Department of Agriculture, who assumed his new duties July 1, as executive assistant to Newall G. Stewart, executive vice-president of the Council. These executives are located at the Council's offices at 610 Fifth Avenue, New York, according to Dr. Theodore G. Klumpp, president of the Council, and also president of Winthrop-Stearns, Inc. Dr. John W. Dargavel, executive secretary of the National Retail Druggists Association, is chairman of the Council's Advisory Committee.

A registered pharmacist as well as an attorney, Mr. Donahue has served with various agencies of the Federal Government since 1941. He was principal legal counsel to the Rural Electrification Administration from 1941 to 1946, when he was appointed regional attorney in Lincoln, Nebraska, for the U. S. Department of Agriculture. He was later transferred to Philadelphia in the same capacity.

Dental Service Demand Doubles

Public demand for dental health services has nearly doubled in less than a generation, according to the American Dental Association. Based on a nation-wide survey of dentists, the Association estimates that in 1952 approximately 42 per cent of the population—65 million persons—sought dental treatment, compared to between only 20 and 25 per cent in 1929. The average dentist treated 1,012 persons in 1952, but there was a wide geographical variation in the patient-dentist ratio with some sections having almost twice the ratio of others.

The highest ratio—1,530 patients per dentist—was found in the southeastern states of Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee and Virginia.

The lowest ratio—757 patients per dentist—was found in the middle-eastern states of Delaware, Maryland, New Jersey, New York, Pennsylvania, West Virginia, and the District of Columbia.

The reason for the wide variation is the fact that the middle-eastern states have more than twice as many dentists proportionately as the southeastern states.

FTC Compliance Program

The Federal Trade Commission is taking steps to put into effect what it calls an "integrated compliance program and other improvements in its compliance procedures. The program calls for a systematic and selective review of 4,000 cease and desist orders, 8,000 stipulation-agreements to cease and desist, and 2,000 trade practice rules.

In addition to the systematic survey of all outstanding orders, stipulations and trade practice rules, other steps will be taken. These are:

1. Closer coordination between the general investigation staff and the staffs primarily responsible for compliance with orders, stipulations and trade practice rules.
2. More frequent use of procedures for requiring the filing of special follow-up reports "showing the manner and form of compliance with cease and desist orders.
3. Use of a more informative letter of notification to respondents under orders and parties to stipulations concerning the action to be taken in receiving and filing their reports of compliance.
4. A more effective program for enlisting the cooperation of industry members to effect industry-wide observance of trade practice rules, including more extensive utilization of industry trade practice committees.

One other step—adopted by the Commission but held in abeyance pending revision of its Rules of Practice—would "provide for the making of compliance reports under oath in appropriate cases."

With respect to most of the 4500 orders to cease and desist issued to date, the Commission does not know with any degree of certainty whether or not the respondents have continued to be in substantial compliance. In proposing to maintain a systematic and continuing check of compliance, the Commission indicates that it will use more extensively "in appropriate cases" its statutory powers to require annual reports and non-periodic special reports. However, the Commission had decided against indiscriminate continuous use of either periodic special or annual reports.

"While we are determined to take every reasonable step to bring about compliance with our orders," Commission Chairman Howrey said, "the expense and inconvenience to business and their economic consequences must be weighed in the balance with the public interest. We have concluded that the extraordinary investigatory powers of the Commission should be used when clearly required to protect the public interest."

The Commission will continue to call for the filing of initial reports of compliance within sixty days after the service of an order. Recognizing that this period is inadequate in some cases, the Commission points out that the Division of Compliance has the power to extend the time for filing up to an additional sixty days.

Concerning the proposal that provision be made for requiring compliance reports to be in writing under

● *And uniform savings for you!* For any variation in the beeswax base of your chemical, pharmaceutical or cosmetic preparations can cause additional expense in your laboratory and plant—and lost sales at your dealers' counters.

Natural refined beeswax is a small fraction of your total product cost. Yet the unchanging purity, texture and whiteness of Beehive Brand Beeswax can be the big help in keeping your product up to the high standards you have set.

FREE CONSULTATION SERVICE

The experimental data and practical manufacturing experience of nearly a hundred years' specialization in beeswax and beeswax compounds are at your service without cost or obligation. Write us about your beeswax problems.

WILL & BAUMER
Candle Co., Inc.
Syracuse, N. Y. **Established 1855**

SPERMACETI • CERESINE • RED OIL • YELLOW BEESWAX • COMPOSITION WAXES • STEARIC ACID • HYDISTEAR

oath, it is pointed out that "this would bring into play the remedy of a prosecution for perjury in appropriate cases." In addition:

"This remedy would be preferable in cases where the financial position of a fly-by-night respondent renders him almost judgment-proof for civil penalty purposes. Cases have been known where such a respondent is extensively injuring the public in interstate commerce through fast and iniquitous manoeuvering in violation of the Commission's order. In any event, making the report under oath would tend to make the respondent more careful in his statements, add to the dignity of the report, and might have the psychological effect of inclining him toward an obedience period of longer duration."

Proprietary Association Loses N. J. Case

The Supreme Court of the State of New Jersey has dismissed the case brought by the Proprietary Association and decided in the Superior Court in favor of the Association close to a year ago. The appeal to New Jersey's highest court by the State Board of Pharmacy was from the lower court's decision that the board's regulation defining drug and medicine was unreasonable. Judge Frederic C. Colie of the Superior Court had ruled that the board's three-part drug and medicine definitions bore "no reasonable relation to public health, safety and welfare."

The purpose of the suit was to legalize the sale of many-packaged medicines in grocery and department stores, and in other retail outlets, without the necessity of having a registered pharmacist supervise the selling. The Association brought the suit to ask for an advisory opinion of the courts. It was pointed out that while the New Jersey law prevents the sale of drugs by anyone except a registered pharmacist, "non-poisonous and proprietary medicines" are not covered by the law. The Association contended that the board has administered the law in such a way as to allow no exceptions. As a result of this action the Association got from the Superior Court what it asked for.

However, this definition of the lower court is of no avail now as the Supreme Court has reversed the Superior Court and has dismissed the case. The Supreme Court ruled that definition of what drugs and medicines can be sold in stores other than drug stores is a job for the legislature. Therefore, any relief from the situation in New Jersey will have to be sought by legislative means.

Substitution Action in Florida

Continuing to crack down on the practice of substitution, the Florida State Board of Pharmacy last month, on the basis of detailed evidence furnished by Smith, Kline & French Laboratories, brought action against 17 pharmacists charged with violation of the Florida Pharmacy Act. The 17 pharmacists were charged with violation of Chapter 465 of the Florida statute which gives the board the right "to revoke or suspend the license and registration certificate of any registered pharmacist . . . who (has) used in compounding of a prescription, or furnished upon prescription, an ingredient or article different in any manner from the ingredient or article prescribed."

Three pharmacists had their licenses suspended for thirty days, while two violators received six months' probation after their licenses were suspended for a half year and the suspension lifted. Another pharmacist received a three months' suspension, before this was waived and he was placed on probation for an equivalent period of time. Suspension of another pharmacist's license was lifted and the substitutor placed on probation for thirty days.

Although an additional four pharmacists were found not guilty because they were employees, their employer very probably will be called before the board to answer for them. If it is revealed that the employer is unregistered, then the board of Health will be called in on the case. In another instance, the board agreed to defer action until after an authorized chemist makes a comparative analysis of the product prescribed and the drug dispensed, while in another case the board postponed any action until the next meeting.

Aerosol Packaging Growth

"Perhaps the greatest growth in the aerosol and pressurized packaging field in the year, 1953, has been in the category of shave cream," Frederick G. Lodes reported to the recent annual meeting of the Chemical Specialties Manufacturers Association as chairman of its Aerosol Survey Committee. Continuing, he said, "It is the opinion of your committee that a large portion of the unreported total figure lies in the category of shave cream. It is estimated that approximately 32,000,000 shave cream units were produced and, if correct, is approximately twice the 1952 figure which was 16,682,378."

"Another remarkable growth in 1953 appeared in the hair lacquer products," the report continued. "In 1952, this particular item was not in a category of its own and was part of 'Other Personal Products,' which included several other aerosol items. The 1952 figure for this entire group of items was 8,766,000 which included hair lacquer. If hair lacquer constituted 5,000,000 of this figure, we then have triple the figure in 1953, which was 15,120,132."

For 1953, a figure of 3,799,878 is given for Other Personal Products, which includes shampoos, perfumes, personal deodorants, sun tan oil, hand lotion, etc.

For 1953, a figure of 831,301 units is given for Medicinals and Pharmaceuticals, which includes preparations for athlete's foot, burns, etc.

Lilly Wins Two Publication Awards

Two Eli Lilly & Company publications—The Lilly Review and Tile and Till—have won two of the twelve first-place awards made by the International Council of Industrial Editors in its 1953 contest. The awards, based on "achievement of purpose, excellence of editorial content, and excellence of design," were recently made in Detroit. Nearly 1,000 contest entries were submitted in the twelve categories by business and industrial establishments throughout the nation.

The Lilly Review competed in the category for Class A magazines published for internal distribution among employees in a single community. Tile and Till was

LOOK at the sales advantages offered your product by G-11®

(Brand of Hexachlorophene)

The market for products containing G-11 is an established, growing market with virtually unlimited opportunities for profitable development.

Few products have ever been studied so exhaustively and given such unanimous acclaim by authorities. G-11 is recognized as the proven, effective and non-irritating antiseptic chemical that offers outstanding hygienic and deodorizing advantages.

Years of safe, successful use by millions of people assure the continued success of your products containing G-11.

As the originator and producer of G-11, Sindar offers you the benefits of its scientific knowledge, practical marketing experience and technical service in using it to the best advantage in your soaps, detergents and cosmetics.

Bulletins are available on:

- **Physical and Chemical Properties**
- **Toxicological Properties**
- **Bacteriological Properties**
- **Cosmetic Use**
- **Soap and Detergent Use**
- **Literary Abstracts**

SINDAR® Corporation
Industrial Aromatics and Chemicals

330 West 42nd Street • New York 36, N. Y.

Branches: Philadelphia • Boston • Cincinnati
Detroit • Chicago • Seattle • Los Angeles • Toronto

judged best among magazines for external distribution aimed at promoting understanding of the company, good will, sales promotion, and product information.

Parke, Davis Expands for Polio Vaccine

Parke, Davis & Company is expressing the fullest confidence in the Salk poliomyelitis vaccine by announcing plans for new facilities at its 700-acre Parkedale farm at Rochester, Michigan. Parke, Davis, which supplied a large percentage of the vaccine now being used by the Foundation in its nation-wide test involving 650,000 children, is to have these additional facilities completed and in operation by October 1, 1954. These new facilities will supplement the existing facilities at the company's main plant in Detroit, 35 miles south of Rochester.

The new facilities will consist of two buildings for producing the vaccine. While one of these buildings will be entirely new, the other structure will be remodeled to accommodate several thousand monkeys. Kidneys and other tissues from these animals are used to grow the three main types of virus in test tubes, and the final product is tested in live monkeys for 28 days before it is pronounced safe and effective.

Parke, Davis & Company has accumulated 51 years of knowledge and experience in vaccine research and production since 1903, when it obtained U. S. License No. 1 for the manufacture of biological products. The Parkedale biological and botanical laboratories were established in 1908 and have produced many of the firm's antitoxins, antiserums, vaccines, and medicinal plants.

More Vitamin Research Grants

An extensive program of clinical and laboratory research in the fields of vitamins and nutrition will be supported by eleven new grants to universities and medical centers throughout the country, according to Dr. Robert S. Goodhart, scientific director of the National Vitamin Foundation. A total of $55,085 to support the important studies has been granted for these studies which became effective June 30. Grants-in-aid are given by the Foundation semi-annually. The new grants include:

For studies on the relation of vitamin B_{12} to nerve cell metabolism, $4,000, to William F. Alexander, Ph.D., St. Louis University, St. Louis.

For studies on human pantothenic acid deficiency, $5,000, to William B. Bean, M.D., and Robert E. Hodges, M.D., State University of Iowa, Iowa City.

For studies of the processes involved in metaplasia in the rat uterus following vitamin A deficiency and studies of the relationship between estrogen and vitamin A deficiency in producing metaplasia in the rat uterus, $3,135, to Walter J. Bo, M.D., University of North Dakota, North Forks, N. D.

For biochemical studies on the process of aging, $6,000, to Bacon F. Chow, PhD., The Johns Hopkins University, Baltimore.

For studies on the fundamental biochemical and morphological pathology of B-vitamin deficiencies in the Rhesus monkey, $7,500, to Louis D. Greenberg, Ph.D., and J. F. Rinehart, M.D.

For studies on the role of vitamin B_{12} in animal nutrition, $4,950, to B. Connor Johnson, Ph.D., University of Illinois, Urgana, Ill.

For studies on carnitine levels in the blood, urine and skeletal muscle of healthy individuals and in patients suffering with nutritional disease, $3,600, to Robert M. Kark, M.D., University of Illinois, Chicago.

For studies of the quantitative requirements of the baby pig for certain B vitamins, $3,000, to R. W. Luecke, Ph.D., Michigan State College, Lansing, Mich.

For studies on multiple congenital abnormalities produced by vitamin deficiencies, $3,000, to Majorie M. Nelson, Ph.D., University of California, Berkeley, Calif.

For studies on vitamin B_6 and intermediary metabolism, $2,900, to E. W. McHenry, Ph.D., University of Toronto, Toronto, Canada.

For studies on the influence of nutritional and hormonal factors in patients with diabetes mellitus, $12,000, to Elaine P. Ralli, M.D., New York University, New York.

Handbook of Cosmetic Materials

The Handbook of Cosmetic Materials—Their Properties, Uses, and Toxic and Dermatologic Actions, is a real contribution to the literature on cosmetics. Compiled by Leon Greenberg, Ph.D., and David Lester, Ph.D., of the Laboratory of Applied Physiology, of Yale University, the material in the book is the result of literature search instituted by the Toilet Goods Association several years ago. This was a collaborative effort in which the Toilet Goods Association requested members of the cosmetic industry to furnish lists of ingredients important to them with a view to the development of a basic reference work. The Toilet Goods Association turned over these lists of ingredients to the staff of the Bibliographic Reviews project of the Yale University of Applied Physiology. The book is the result of many years' work.

The raw materials are arranged alphabetically, and included in the paragraphs on the various raw materials are references to the bibliography of 2734 references.

The book contains an introductory chapter on The Skin by Howard W. Haggard, M.D. Every cosmetic manufacturer's library should contain this book.

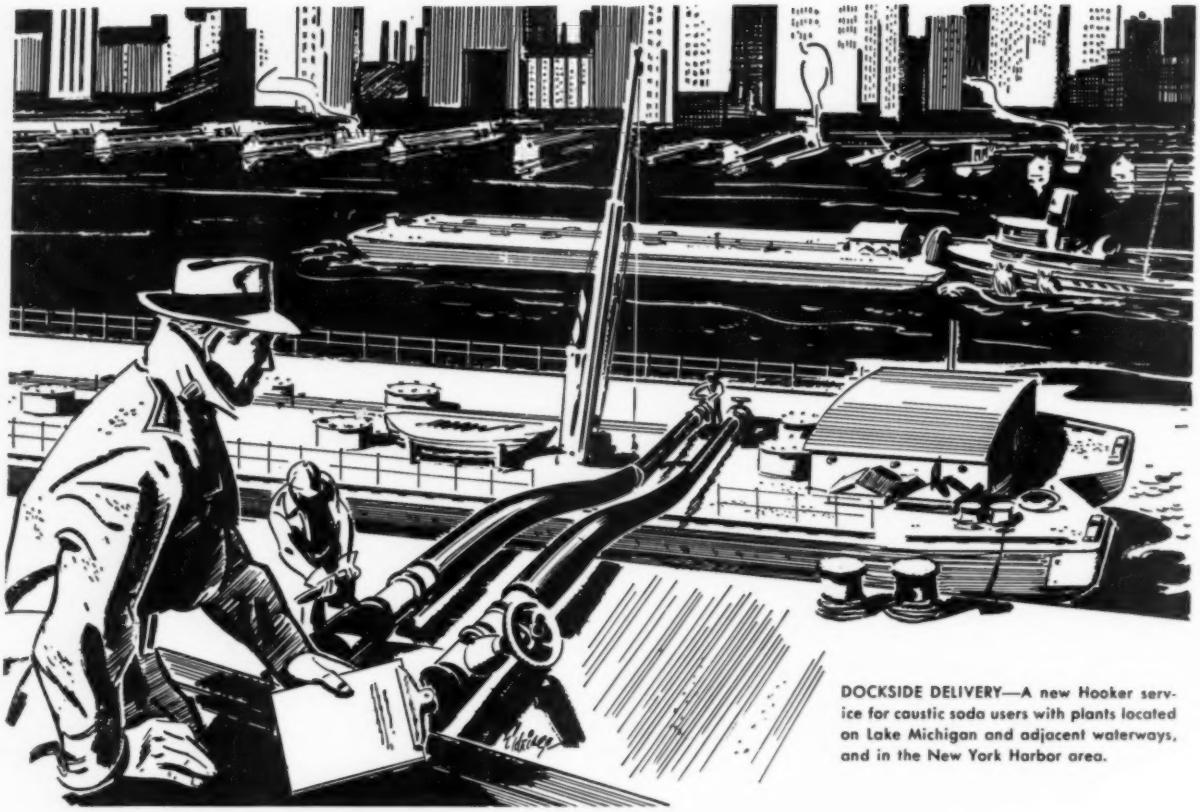
From Our Mail

Glenn Sonnedecker, secretary of the American Institute of the History of Pharmacy, Madison, Wis., under date of June 18, writes us as follows:

I find your article, "Pharmacists at the Crossroads," a refreshing and objective discussion, which appeared in the August, 1953, issue. In fact, it could well be required reading for senior pharmacy students, and that is what I propose to make it in my history of pharmacy course at the University of Wisconsin.

For this purpose I would need six copies for the Library. I would likewise be interested in obtaining six copies of the essay, "The Substitution Problem," in the January, 1953, issue.

Drug and Cosmetic Industry is being conducted on a high level, and I find your editorial discussions, in general, well balanced and perceptive.



DOCKSIDE DELIVERY—A new Hooker service for caustic soda users with plants located on Lake Michigan and adjacent waterways, and in the New York Harbor area.

For safe, sure, consistent results . . .
STANDARDIZE on Hooker Caustic Soda

Why this is important to you:
With *uniform* caustic soda coming in, shipment after shipment, you can standardize your caustic handling and processing.

You need not adjust your process to meet variations in incoming caustic shipments. You can be sure each new shipment matches your current inventory.

You get this kind of uniformity with Hooker Caustic Soda. Every step in the manufacture—from salt brine to tank car—is controlled at Hooker, by Hooker. More than 20 separate inspections and analyses safeguard the uniformity of the Hooker Caustic you buy.

This is one reason why leaders in 30 industries specify *Hooker* Caustic—and why many have specified it for nearly 50 years.

Hooker uniformity can pay off for you, too—in lower operating costs and smoother, better processing. Try it and see. A letter or phone call to the nearest Hooker office will bring you product data and contract information.

Buy the UNIFORMITY Hooker Caustic Soda gives you

Forms: Liquid 50% and 73% • Flake • Solid • Special fine flakes
Containers: Tank cars • Tank wagons • Barges • Drums

For fast service, phone:

CHICAGO	CEntral 6-1311
LOS ANGELES	NEvada 6-3826
NEW YORK	MUrray Hill 2-2500
NIAGARA FALLS	6655
TACOMA	BRoadway 1215

HOOKER CHEMICALS

3-1764

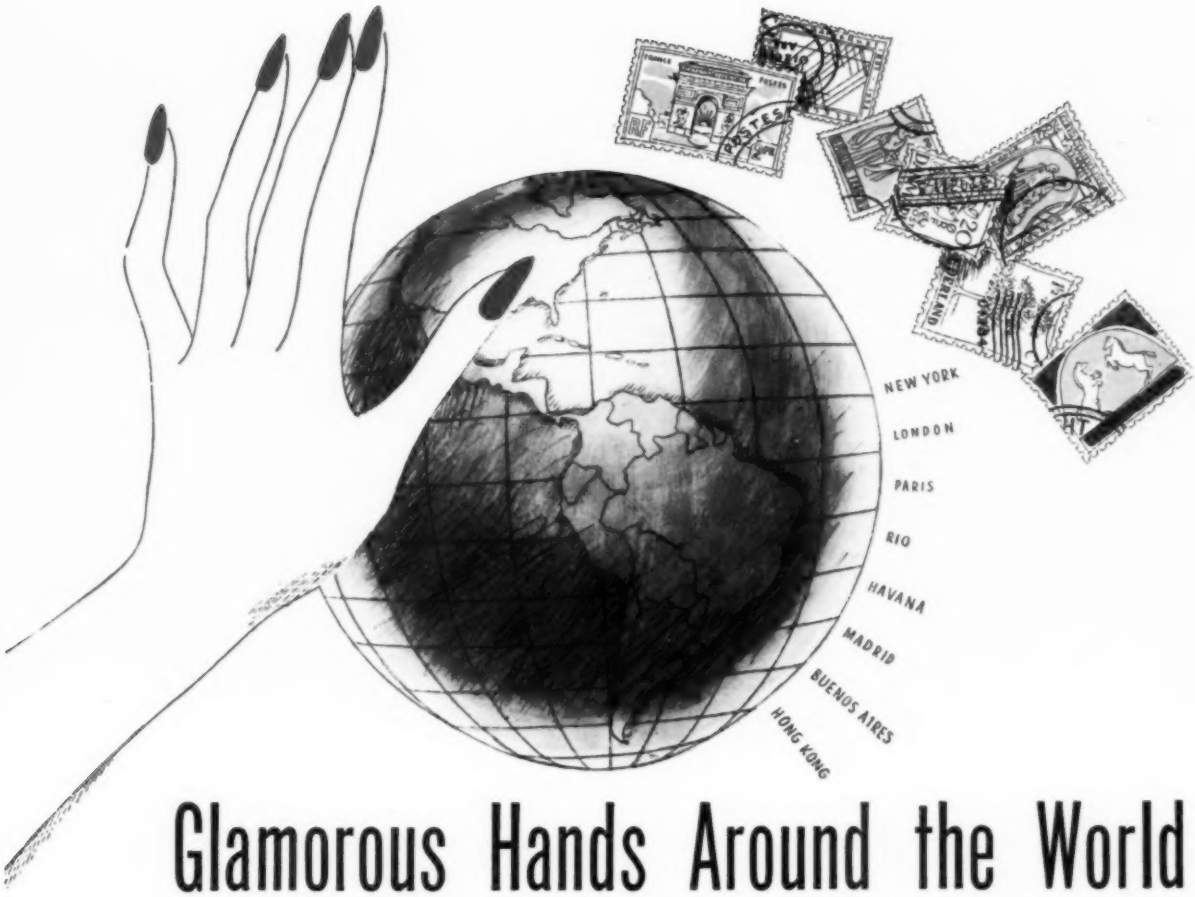
From the Salt of the Earth

HOOKER ELECTROCHEMICAL COMPANY

HOOKER ELECTROCHEMICAL COMPANY
13 Forty-Seventh St., Niagara Falls, N. Y.

Please send ☐ data sheets on Hooker Caustic Soda; ☐ Bulletin 100 describing Hooker products and services.

Name.....Title.....
Company.....
Address.....
City.....Zone.....State.....



Glamorous Hands Around the World Call For the Foremost Name

DURLIN *for bulk nail enamel*

DURLIN is the Foremost Name in BULK NAIL ENAMEL catering to the leading class packagers the world over. Durlin is first in quality, first in fashion-right colors, first in technical and packaging service.

glamorous hands *around the world . . .*

DURLIN CO.

744 Broad Street, Newark 2, N. J.

Cable Address: Durlin Newark Newjersey

How Givaudan's versatile service simplifies your perfuming problems

Suggestions and ideas in the creation or the selection of fragrances, as well as sound technical counsel are continually being provided to customers by Givaudan's experienced staff.

Perfuming an entire product line—a task calling for knowledge of the behavior of various aromatic combinations in various media—is an important Givaudan service.

Knowledge of consumer preferences, gained from long experience, enables Givaudan to help develop perfumes for either a "class" or a "mass" market.

Compatil
such as
possible
complete

Compatibility tests under varying conditions, such as heat, light, air and humidity make it possible for you to use Givaudan aromatics with complete confidence in their performance.

World-wide resources, with manufacturing plants in Switzerland, France, Italy, England and Brazil, enable Givaudan to supply uniform-quality materials throughout the world.

Givaudan's service laboratories work creatively with customers to develop the best fragrances quality-wise, – and the most appropriate to their lines.

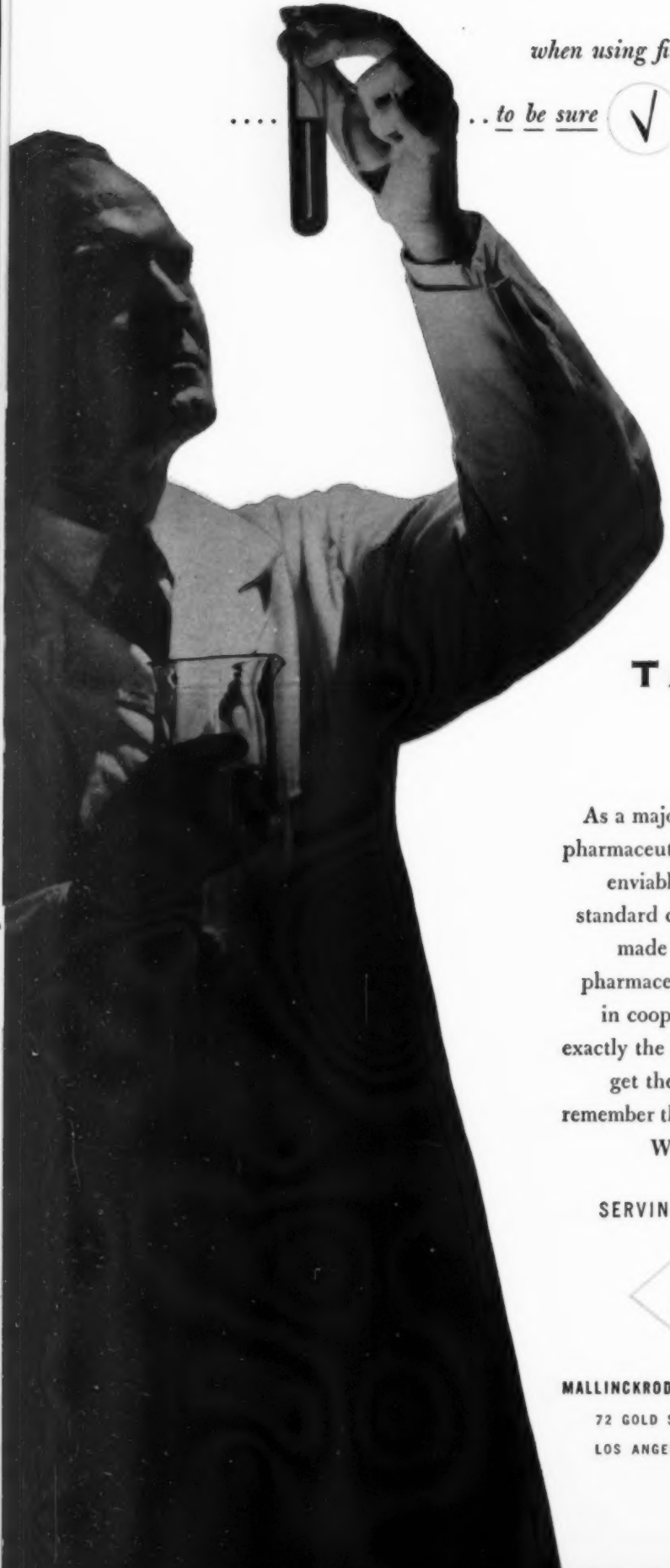
The ability to handle any fragrance problem is one of the reasons why customers find Givaudan's service both economical and efficient.

GIVAUDAN

Better perfume materials through constant research and creative ability

GIVAUDAN - DELAWANNA, INC.
330 West 42nd Street · New York 36, N.Y.

Branches: Philadelphia · Boston · Cincinnati · Detroit
Chicago · Seattle · Los Angeles · Toronto



when using fine chemicals

.... ..*to be sure* √ *check the source*

BACKGROUND FOR

TAILOR-MADE

CHEMICALS

As a major supplier of fine, dependable chemicals to the pharmaceutical manufacturer, Mallinckrodt has long had an enviable reputation. This was earned not only with standard chemicals, but with chemicals and intermediates made *to specification* for the greatest names in the pharmaceutical field. Mallinckrodt's chemists often work in cooperation with pharmaceutical houses to create exactly the right chemical, with the right properties—and to get the job done at the right time. This is good to remember the next time you set out to develop a new product. Write us if you have questions or a problem.

SERVING THE PHARMACEUTICAL MANUFACTURER

Mallinckrodt Since 1867

MALLINCKRODT CHEMICAL WORKS MALLINCKRODT STREET, ST. LOUIS 7, MO.

72 GOLD ST., NEW YORK 8, N. Y. CHICAGO · CINCINNATI · CLEVELAND

LOS ANGELES · PHILADELPHIA · SAN FRANCISCO · MONTREAL · TORONTO

Government Suit Against Perfume Importers

COURTESY THE FRAGRANCE FOUNDATION

Great consternation has struck those who market French perfumes in this country, as the result of civil antitrust actions filed by the Department of Justice in the U. S. District Court at New York. These actions were filed against only four companies, but these are believed to be only test cases in which the Department of Justice will seek to prove its point in court before bringing cases against many other similar companies. The four companies against whom charges have been filed are Parfums Corday, Inc., Lanvin Parfums, Inc., Guerlain, Inc., and Empro Corporation (Lentheric), all of New York.

In announcing the suits, the Department of Justice also stated that a consent judgment had been filed against Empro Corporation, which becomes effective in 120 days. This leaves only three cases to be tried.

The charges against these companies are that they are violating Section 2 of the Sherman Act in attempting to monopolize interstate and foreign trade and commerce by preventing others from importing the lines of trademarked goods produced by their foreign affiliates. The foreign affiliates, it is charged, sell this merchandise at substantially lower prices than those charged in the United States.

The purpose of the actions is to obtain from the court an order requiring the defendants to allow the products of their foreign affiliates to be brought into this country by others than themselves, and sold by these other importers. At the present time the American sellers of French perfumes are prohibiting this through Section 526 of the Customs Act. Section 526 reads:

"It shall be unlawful to import into the United States any merchandise of foreign manufacture if such merchandise bears a trademark, or if the label, sign, print, package, wrapper or receptacle bears a trademark owned by a citizen or by a corporation or association created or organized within the United States and registered in the Patent Office by a person domiciled in the United States."

This Section was enacted in 1922 to plug a loophole in the law following a U. S. Circuit Court decision against Bourjois in which the court ruled that if a product was not a copy or simulation, it could be imported by anyone even though it bore a trademark registered in the United States and owned by another. Following enactment of Section 526, the U. S. Supreme Court ruled in favor of Bourjois. In this case it was proven that the French company had sold the trademark rights for the United States to Bourjois of the United States.

The contention of the Department of Justice is that the Lanham Trade Mark Act of 1946 did away with the protection to trademark owners provided by Section 526 of the Customs Act. Section 42 of the Lanham Act, entitled, "importation forbidden of goods bearing infringing marks or names," mentions only goods which are copies and simulations. Therefore, contends the Department of Justice, it is not illegal to import goods bearing a United States registered trademark owned by another, so long as the goods imported are the genuine article sold by the owner of the trademark in this country. According to the Justice Department this provision of the Lanham Act overrules Section 526 of the Customs Act.

Under Section 526 of the Customs Act, customs inspectors have been charged with the responsibility of prohibiting the importation by tourists as well as by importers of foreign perfumes sold under United States trademarks. Because the owners of the trademarks in the United States had listed with the Customs Depart-

(*Continued on page 125*)

Ethyl Cellulose in Aerosol Hair Lacquers*

by H. G. Philips, Jr.

HERCULES EXPERIMENT STATION, HERCULES POWDER COMPANY, WILMINGTON, DELAWARE

The versatility of ethyl cellulose has made it a long-established product in such varying applications as strippable coatings, paper and furniture lacquers, elastics, and phonograph records. The unique properties of ethyl cellulose have also made it useful in a wide variety of aerosol-dispensed products.

In Table I are shown some of the properties of ethyl cellulose which make it useful in aerosol-applied products.

Ethyl cellulose is manufactured in a wide variety of types. These types vary in ethoxyl content and in viscosity. In Table 2 are shown the solubility characteristics of certain types of ethyl cellulose in typical aerosol propellants. The T-type ethyl cellulose, which has the highest ethoxyl content, is most soluble in typical propellants alone. The other types of ethyl cellulose require a cosolvent in addition to the propellant to obtain good solution characteristics.

Table 1

PROPERTIES OF ETHYL CELLULOSE

General

1. White powder, readily soluble in most alcohols, aromatic hydrocarbons, esters, and ketones.
2. Produces a colorless film which is practically unaffected by light.
3. Excellent flexibility over a wide range of temperatures.
4. Odorless and tasteless.
5. Low density (gives greater coverage and greater volume per unit weight than many high polymers).
6. Excellent compatibility with a wide variety of resins, plasticizers, waxes, and high polymers.

Physical Properties

1. Light transmission, practically complete 3100-4000A.
2. Light transmission, better than 50 per cent complete 2800-3100A.
3. Refractive index 1.47.
4. Specific gravity 1.14.
5. Melting point 200-210° C.

Ethyl Cellulose in Aerosol-Applied Hair Lacquers

Aerosol-applied hair lacquers are one of the newer products now being widely marketed. Their wide acceptance is apparently due, in part, to the unique sales appeal of the aerosol technique of dispensing such products.

Most commercially available hair coatings have certain faults. Some are too sticky when applied to the hair, some too stiff, and still others are difficult to remove from the hair. The properties desired in a hair lacquer or "set" differ from individual to individual; however, a wide range of properties can be obtained with hair lacquers based on ethyl cellulose. Ethyl cellulose is particularly well suited because of its freedom from color and excellent compatibility with various modifiers.

Tables 3 and 4 show some ethyl cellulose compositions which were tried on a laboratory scale as hair lacquers. These compositions are not recommended

Table 2

SOLUBILITY OF ETHYL CELLULOSE IN TYPICAL AEROSOL PROPELLANTS

	Typical Test Data		
Property	K-14	N-10	T-10
Ethoxyl Range, per cent	45.5-46.8	47.5-49.0	49.0 \
Viscosity Range[1], cps	12-16	8-11	8-11
Solubility[2] in:			
Freon 11	I	PS	S
Freon 12	—	I	I
50:50 Freon 11: Freon 12	—	I	S

Legend:
I = Insoluble
PS = Partially Soluble
S = Soluble

[1] Five per cent concentration in 80/20, toluene/ethanol.

[2] Ethyl cellulose at concentration of six per cent solids (by weight).

*Delivered before Chemical Specialties Manufacturers Association.

COURTESY CHARLES ANTELL

Table 3

AEROSOL-APPLIED ETHYL CELLULOSE HAIR LACQUERS

	1	2	3	4
Ethyl Cellulose T-10	3	2	2.5	
Ethyl Cellulose N-10				2.5
Diethylene glycol oleate (Diglycol Oleate S)	1	2	1.5	1.5
Absolute Alcohol	46	46	46	46
Freon 12	50	50	50	50
	100	100	100.0	100.0
Spraying and drying characteristics	All lacquers have excellent flowout and dry tack-free in two minutes (as a 0. 3-mil dry film applied to glass)			
"Set" Properties for Hair	Good gloss, no tack, too stiff	Soft	Good gloss, no tack, fair "set" characteristics	Same as No. 3
Ease of removal by washing (from glass plate—10 rubs with wet cloth—or from hair)	Good	——Excellent——		

as proven formulas but are presented only to illustrate that ethyl cellulose is a film-former which may be compounded to give the delicate balance of properties which appears necessary in a successful hair lacquer. This report on the laboratory work done may also be of help as a starting point for anyone wishing to make a more thorough investigation.

The formulations of Table 3 are based on various mixtures of ethyl cellulose and diethylene glycol oleate. Diethylene glycol oleate, a water-soluble plasticizer, was used as a modifier to control film flexibility (and therefore stiffening or "set" properties) and to aid in removal of the lacquer film by washing. The formula-

(Continued on page 131)

PVP

by Millon A. Lesser

COURTESY GENERAL ANILINE & FILM CORPORATION

Polyvinylpyrrolidone, more conveniently known as PVP, has been described as a very versatile chemical. Originally introduced as a blood plasma extender or expander, PVP has attracted considerable attention in the pharmaceutical and cosmetic industries because of its unusual combination of properties. Among the characteristics responsible for this wide interest in PVP are its physiologic compatibility, its solubilizing action, its ability to prolong the activity of drugs, its detoxifying action, and its ability to protect and stabilize suspensions, dispersions and emulsions.

As one of the products resulting from Reppe's major studies of acetylene chemistry, polyvinylpyrrolidone had its inception during the 1930's. It was not until the end of World War II that it attracted the attention of American workers. Allied teams entering Germany discovered that PVP was the chief ingredient of a widely used plasma substitute called Periston. Further studies of PVP led not only to its improvement as a plasma extender but also to a realization of its potentialities in many other products.

Polyvinylpyrrolidone is the end result of a series of interesting and carefully controlled series of reactions that start with formaldehyde and acetylene as raw materials. The process, according to Hansen, Bergman and Witwer,[1] is essentially as follows: Acetylene is reacted with formaldehyde to produce butynediol which is reduced to butanediol. This is then dehydrogenated to yield butrolactone which in turn is reacted with ammonia to give pyrrolidone. Reaction with acetylene produces vinylpyrrolidone, which can be polymerized by several different methods to polyvinylpyrrolidone.

The polymerization process is carefully controlled to yield a product with a chain length and molecular weight most suited to the production of plasma expanders and other uses. American producers of PVP have been particularly successful in making high grade materials. It is said[2] that their careful preparation insures uniformity and eliminates concern over blood groupings and allergic reactions.

The final product is a white, amorphous powder that can be stored indefinitely. It is soluble in water as well as in a wide variety of organic solvents. Dilute aqueous solutions are practically clear and colorless, but the more concentrated preparations are slightly hazy and show a light yellow to yellow color. Since the aqueous solutions support mold growth, sterilization by heating is recommended. However, this required heating does not appear to change the properties of the PVP solution or otherwise damage it.[3] The sterilized solutions are stable and will stand up during storage.[4]

In the opinion of the Shelanskis,[5] PVP may almost be considered as a synthetic protein. It behaves primarily like a protein but does not have certain undesirable protein properties, such as allergenic, antigenic, or depressor releasing effects. Also, PVP does not react with certain protein precipitants.

According to these investigators, PVP is nontoxic by oral administration, by skin absorption, by inhalation, or by intravenous or intraperitoneal injection. In acute oral toxicity tests, rats and guinea pigs were fed a dose of 100 Gm. of PVP per kg. of body weight. Both groups of animals survived an observation period of two weeks and appeared to be in good health at the end of that time.[3]

In patch tests on 200 human subjects, none showed any reaction to PVP after either the first or second application. These findings indicate that the material, as available today, is neither a primary irritant nor a sensitizer. In addition, as noted by Ravdin,[6] polyvinylpyrrolidone is nonantigenic. He cites studies which revealed no significant interference by PVP with liver or renal function, even months after its intravenous injection in amounts up to 3,000 cc.

Since PVP has found its greatest use in plasma expanders, particular attention[6-9] has been given to the metabolism and ultimate fate of this material when injected into the body. Pulaska[10] states that from 20 to 50 per cent of the amount infused can be accounted for in the urine in the unchanged state, and traces can be detected ten days after injection. Experiments with radioactive materials have shown that less than one per cent is exhaled as carbon dioxide in the first ten days after administration. Such experiments also demonstrated that the unexcreted portion is taken up by the reticuloendothelial system, the skin and the skeletal muscles and stored for an undetermined period.

COURTESY GENERAL ANILINE & FILM CORPORATION

According to Soutter[11] the degree of storage of PVP is dependent upon molecular size, the amount administered and the span of time in which it is given. Thus, by means of radioactive-tracer technics, Ravin, Seligman and Fine[12] have shown that PVP is not metabolized to any significant degree by the rat, dog or man. Its retention in the body is directly related to increasing molecular size. Excretion, they found, is inversely related to increasing molecular size. Its pattern of distribution in the body is also determined by molecular size.

Realizing the difficulty of producing a molecularly homogeneous PVP preparation, these workers suggest that a possible practical product would be one so fractionated that most of the molecules fall in the range between 25,000 and 40,000, with extreme limits of 20,000 to 70,000. After using a solution with these characteristics, about 60 per cent of the preparation would be excreted into the urine within a few days; the rest requiring a year or more to be eliminated. Such a product, they believe, would probably be totally excreted in time, and little if any would be stored permanently in the reticuloendothelial system.

Nonetheless studies continue in order to determine whether such stored PVP can be injurious. However, as remarked by Favdin,[6] this storage "has not been amply shown to produce toxic effects."

The primary function of plasma substitutes or expanders, including those made with PVP, is to restore blood volume, arterial pressure and cardiac output until whole blood can be obtained. They thus serve to tide an individual over a critical period until such materials as are specifically needed can be given or until the patient can himself produce and disseminate enough material to restore his own blood volume.[9]

There is an impressive background of evidence, especially in the European literature,[13] that PVP solutions are effective blood plasma expanders. For example, it is estimated that in the form of Periston, PVP was administered intravenously to some half-million German soldiers during World War II with satisfactory results.[10] Subsequently, Periston was used routinely in many surgical clinics in Germany. In addition, a 3.5 per cent solution of PVP in physiologic saline, called Subtosan, has been used in other European countries.[14] In the United States, a similar plasma expander is available as PVP-Macrose (Schenley).

Interest in PVP preparations in this country derives, to a large extent, from the need for stockpiling blood plasma substitutes in case of military or civilian disaster. According to Soutter,[11] the material which is being supplied to the Federal Civil Defense Administration is a 3.5 per cent solution of PVP in physiologic saline. The American product is nonpyrogenic, noninfective, almost nontoxic and, as contrasted with

(Continued on page 126)

The Acid Mantle of the Skin

by Otto Jacobi and Herbert Heinrich

KOLMAR RESEARCH CENTER, MILWAUKEE, WISCONSIN

Beginning with the work of Heuss[1] in 1892, the acidity of the human skin has been extensively studied in Europe and it is only quite recently that more American dermatologists have given this subject their attention. Since some of the early fundamental investigations are in hard-to-get German and French medical dissertations and journals, it may be worthwhile to review these dermatological findings briefly.

A few papers[2] have been published on the cosmetic significance of the acid reaction of normal skin. This is in contrast to about 40 to 50 serious and original research papers published on dermatological aspects of the problem, most of them trying to link a change of pH and buffer capacity with skin disorders.

Based on the observations of the German dermatologists, it is only natural that German cosmetics should be formulated on the acid or neutral side. As a matter of fact, it came as a surprise to the post-war German cosmetic chemists that American creams and lotions were in many instances distinctly alkaline in reaction.

To be able to judge whether acid cosmetics are desirable, we give in Table I a limited list of pH values of normal skin as determined by different investigators. Although all values are on the acid side there are some variations which can be attributed to individual differences and the limitations of the methods employed.

TABLE I
pH VALUES OF NORMAL SKIN

	Investigator	Ref.	pH Value	Method Used
1892	Heuss	(1)	qual.	Colorimetric
1923	Sharlit, Scheer	(3)	5.4-5.6	"
1924	Mennesheimer	(4)	5.2-5.8	"
1928	Brill	(5)	6.0-7.0	"
1929	Marchionini	(6)	3.0-5.0	Electrometric
1931	Lustig, Perutz	(7)	5.3	"
1932	Levin, Silvers	(8)	5.0-5.3	"
1938	Peck, Rosenfeld	(9)		"
1939	Koch	(10)	5.0-6.0	"
1942	Schmidt	(11)	5.0-6.0	(Male) "
			5.0-6.0	(Female) "
1951	Klauder, Gross	(12)	4.5-6.0	"
1951	Anderson	(13)	4.9-5.5	"
1951	Jacobi	(14)	5.5-6.5	"
1951	Schmid	(15)	4.8-5.8	"

The early qualitative colorimetric tests were made by applying to the skin sheets of filter paper impregnated with different indicator solutions. This method did not allow the determination of the actual pH values which was accomplished with a fair degree of accuracy by the use of several indicators which changed color at different pH values. The preferred indicators were:

Bromphenol Blue	changes color at		pH 3.0-4.6
Methyl Red	"	"	" pH 4.4-6.0
Brom Cresol	"	"	" pH 5.2-6.8

The early electrometric pH measurements were made with the hydrogen gas electrode which was replaced by the more convenient quinhydrone electrode. The latter has the disadvantage that hydroquinone stains the skin, at times causes irritation and could possibly modify the skin surface. Recent workers prefer the glass electrode which has not only a higher degree of accuracy but also measures the pH of the skin without modifying or changing the surface. It is therefore possible to make repeated measurements and chart changes of acidity.

*Delivered before Scientific Section, the Toilet Goods Association, May 13, 1954.

RTESY HELENA RUBINSTEIN

Sharlitt and Scheer[3] have the distinction of not only being the first to publish a paper on skin pH values in English, but also being the first ones to assign to keratin an important place in the origin and maintenance of the acid nature of the skin. This observation was lost in the following years but has again been established as the most important defense mechanism of the skin itself.

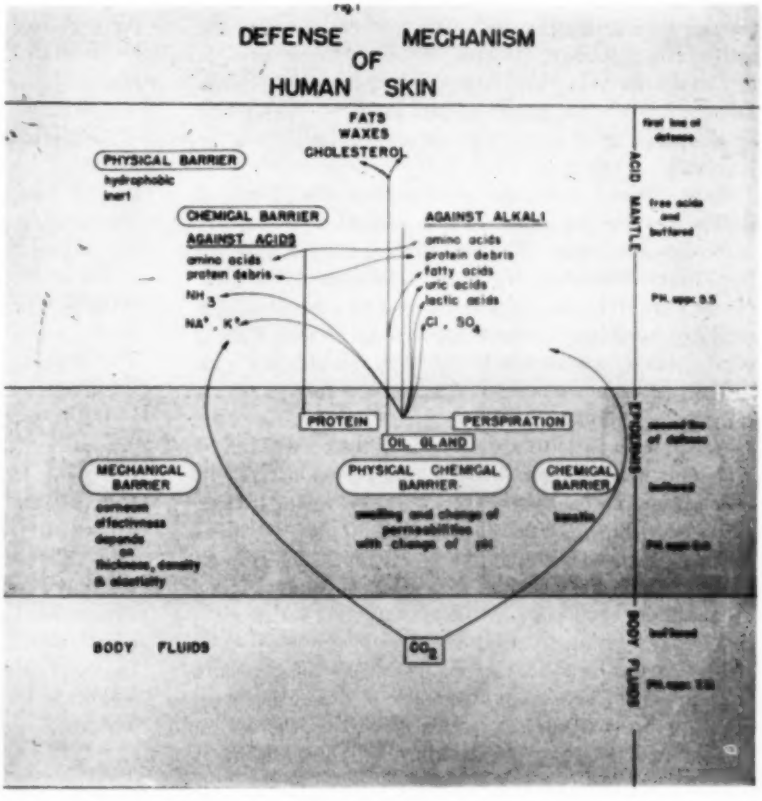
Marchionini[6], in 1929, published his famous paper using for the first time an electrometric method and pointing out the importance of perspiration and its concurrent acids as a factor in producing the acid nature of the skin surface. Wherever he found skin areas which were not acid he also noticed that bacteria seemed to thrive and he noticed that these areas had skin disorders which differed from those encountered on normally acid skin regions. These observations induced Marchionini to coin the term, "Physiological Acid Mantle," which protects the skin and body like a protective mantle against the inroads of bacteria, fungi, alkali and other external influences.

The term, "acid mantle," is such a descriptive term that it has been kept throughout the years although Marchionini had to admit soon after that his original values for the pH of the skin had been too low and are actually between five and six. As a matter of fact, mere acid is not sufficient to ward off bacteria and fungi. Actually, the latter ones grow best in a slightly acid medium. However, Peck[2,9,16], Levin and Silvers[8] showed that if the acidity is caused by acids of perspiration, bactericidal and fungicidal properties are imparted to the acid mantle justifying Marchionini's original claims. The influence of perspiration on the nature of the acid mantle has been the object of several investigations[1,15,6,8,5,7,12]. It was soon shown that heat induced perspiration leaves a more acid residue than drug induced perspiration.

Some years ago Szakall[17] and others assigned a great deal of importance to the normal diffusion of carbon dioxide in neutralizing and buffering action of the acid mantle. However, more recent work[18] assigns to carbon dioxide only a minor role in the activities of the acid mantle and the skin itself. There seems to be evidence that some carbon dioxide is fixed as bicarbonates which then act as a buffer.

Sharlitt and Scheer[3] place a great deal of importance on the reaction of amphoteric amino acids and protein degradation products. Gradually the idea of a static acid pH of the skin has given way to the conception of an acid mantle which derives its value by being a protective sebum layer buffered on the acid side. Schuppli, Schmidt, and others[20] have shown that both acid mantle and skin itself are truly buffered since they do not only neutralize alkali but also acids. However, the alkali neutralization capacity is higher by virtue of the acid nature of both acid mantle and skin.

Today's knowledge of the composition of the acid mantle and the origin of its various components is graphically depicted in Figure 1 which has been adapted



from one published by Wacek[21]. The diagram consists of three regions; the acid mantle, the epidermis, and the region where the bodily fluids circulate. Any damage to the acid mantle, which represents the body's first line of defense, is not serious and is usually repaired within one hour. Damage to the epidermis is more serious and may take several days to repair. Damage to tissue underneath the epidermis is a regular wound and correspondingly slower in healing.

The vehicle of the acid mantle is the sebum which originates in the oil glands of the skin and in the lipoproteins of the barrier region of the epidermis[22]. This region divides the epidermis from the corium, i.e., the region where the body fluids freely circulate. This barrier region is apparently the most acid layer of the epidermis, it is also the lowest in water content and restricts the flow or diffusion of water from the outside into the body[23].

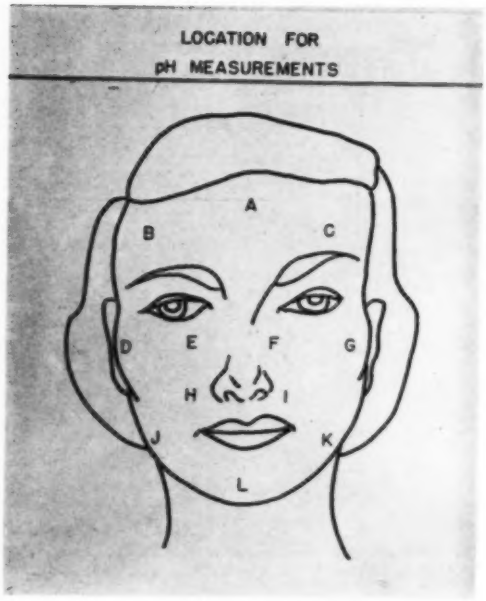
The acid reaction of the protective skin layer is due to water-soluble acids such as, amino, lactic, lower fatty, uric acids and acid salts such as bicarbonates. In addition to the water soluble acids, oleic acid, because of its low water solubility has been found to have a minor influence on the pH of the skin. The very important buffer capacity of the acid mantle is associated with the amphoteric nature of the free amino acids, protein degradation products, bicarbonates, and possibly ammonium salts.

The acid mantle and the epidermis protect the body against external agencies. For this function, the skin has other mechanisms besides its buffer capacity at its disposal. They are swelling and changes in osmotic permeability brought about by colloidal changes within the cell layers. Furthermore, the epidermis is mechanically strong because its outer layer, the corneum, is dry and relatively thick and quite dense and elastic. Depending on the nature of the external forces, one or the other or all of the defense mechanisms could be involved.

As mentioned above, the acid mantle is often removed during washing, by abrasion, or by the mere every day activities of a person. It is therefore of interest to learn how this acid mantle is replaced by the normal functions of the skin. The recuperating power of normal skin is really quite strong. According to our present knowledge, the speed with which the body rebuilds the protective acid mantle is dependent on the factors which caused its removal.

Let us assume that the acid mantle has been removed by non-damaging agents like a non-poisonous solvent or a mild soap wash followed by a thorough water rinse. Then according to Szakall and Kaufmann[24], the lipoproteins of the barrier layer are split or somehow converted into sebum which is secreted at such a rate that approximately 80 per cent of the original fat layer is reinstituted within 60 minutes.

Kaufmann[24] found that the freshly secreted sebum contains about 50 per cent free oleic acid together with several more volatile fatty acids. Although this initial acid mantle does not possess the final composition, it



nevertheless can handle alkali and protects the skin by virtue of its fat content.

Since this replacement of sebum is rather rapid[25] and seems to be triggered by the loss of the acid mantle, it has been postulated that the secretions of the fat glands are implemented by the sebum which is in some way preformed in the epidermis. No matter what we consider the source of the sebum, it is remarkable that the oil and fat layer builds to just its normal thickness and not much more. It almost seems as if the mechanism of the replacement is governed by forces similar to those involved in the healing process of a real wound where normally the flesh and bone fills in until the original size has been reached.

After this relatively quick repair job, other skin functions and secretions change the chemical composition of the acid mantle and at the equilibrium we have the mixture of compounds which is characterized by its content of ionizable acids and its buffer capacity.

The acid mantle of the skin, which has had the attention of the dermatologists for so many years, should certainly be of interest to the cosmetic chemists. The following experiments attempt to study some of the pH changes which the skin undergoes when subjected to some common cleansing operations.

In order to lay a foundation for these investigations, the pH of 12 different locations on the faces of over 20 testers were determined. The ages of these testers ranged from 10 to 70 years. The diagram of the face shows the locations of the 12 standard test areas. Each tester not only did not wear any make-up but had not washed her face for at least five hours. The pH measurements were made by means of a Beckman glass electrode. Contact between the skin and the electrode is established by means of a very thin film of distilled water. The results are tabulated in Table II. They are

(Continued on page 114)

AEROSOL Shave Creams

by Harry Hilfer

Probably the most successful products to appear in the toilet goods economic picture have been the aerosol shave preparations. In a relatively short length of time these products have reached a volume which compares favorably with the amount of the older tube shaving creams—which had captured and held its market for more than twenty years. The new aerosol shave creams owe their success primarily to the novelty and ease with which they may be used. It is doubtful whether they are able to perform the beard-softening function as well as the older types.

The generally accepted theory upon which shaving preparations are based postulates that water is the agency which softens the beard and that the presence of soaps and other surface active agencies are the means by which water is capable of wetting the beard. Washing the face with soap and water as a preliminary before applying the shaving cream actually removes the greatest portion of the oils which prevent easy wetting of the beard, and enables the softening process to begin at that moment. The subsequent addition of shaving cream and water enables the softening process to continue at an accelerated pace because of the accompanying massaging—causing more intimate contact between the beard and the water. Studies made some years ago on the factors involved in shaving indicated that the massaging operation was perhaps the most important, and that a three-minute massaging interval gave best results. In the lather shave type of cream a voluminous lather is produced which serves to act as a line of demarcation for the shaven and unshaven area of the face. The brushless type serves the same purpose though the lather is not as well defined. Actually both these types of creams are considered equally as efficient since well formulated creams of either classification contain enough surface reducing agents to enable the water to come in intimate contact with the beard. This is particularly true if the face had been washed with soap and water beforehand.

The aerosol type of shave cream follows the generalized formula for the lather shave cream more closely than does the brushless type, and contains in addition a quantity of propellant designed to cause instant lathering when ejected from its container. It contains from fifteen to twenty-five per cent of a cocoanut oil fatty acid soap in aqueous solution and from seven to ten per cent of propellant. A temporary emulsion which is effected, first by shaking the container and then by releasing the valve, would cause the emulsion to be ejected onto the hand. The propellant immediately vaporizes with the pressure release causing a greatly expanded foam to result. The propellant is then largely displaced by air, and the foam in this form is then applied. These preparations, if used according to directions, are capable of giving an adequate shave. The directions, however, must include the adequate soap and water washing so that the beard may be softened—to a great extent—before the application of the foam.

In addition to the soap, other additives are sometimes included. Humectants such as glycerol or propylene glycol or sorbital may be incorporated to lower the evaporation rate of the aqueous portion of the film. Gums are also used to extend the life of the foam, but these additives are used in somewhat lower concentrations than in the shaving cream packaged in tubes.

The propellants in common use are mixtures of the more highly volatile types, and another not quite as volatile, used in conjunction with them so that volitalization may be controlled. The presence of water, in addition, introduces a possibility of hydrolysis in some of the Freons, but this is largely cut down by the introduction of the dichlortetrafluorethane, which is very much more stable against hydrolysis than either the dichlordifluormethane or the tetrachlormonofluormethane. The fact that the aqueous medium is somewhat alkaline, because of the soap being present, effectively prevents corrosion of the cans which could otherwise take place, since the hydrochloric acid produced as a result of hydrolysis is neutralized and rendered inactive. The use of the tetrafluordichlorethane to the exclusion of the more easily hydrolyzable propellants would seem to be indicated, but there is a procurement problem in conjunction with it and it apparently needs the addition of some of the dichlordifluormethane to enhance its propellant properties.

As mentioned above, the limits placed on the various

(Continued on page 132)

COURTESY HELENA RUBINSTEIN

Odor Stability

by R. A. Foresman, AEROSOL CONSULTANT,
and R. Pantaleoni, VAN AMERINGEN-HAEBLER, INC.

Due to the increased impact of aerosol packages on the cosmetic market, it was felt that a basic study of aerosol perfuming should be undertaken and reported.

We contemplate that this program will be carried through on a continuing basis and that as various phases are concluded, new ones will be undertaken. This report constitutes only the preliminary findings of the investigation. It is worth noting here that at the time the work was initiated there was no indication of a long term shortage of "Freon-114," which has been considered the cosmetic Freon. As the shortage developed and became more acute and of apparent long-term duration, we realized that a re-examination of the more available propellants was in order. This is underway, but has been started too recently for any results to be reported.

In order to carry out such a program, we early concluded that some limitations on the number of experimental variables for each phase would have to be imposed. The perfume components provided a potentially infinite number of possibilities. The types and actual formulas of cosmetic products are without limit. Many propellants, pure or in combination, are in general use for various types of aerosols. The materials considered suitable for aerosol packages have recently been added to by introduction of the glass package. Last, the conditions of storage should include reasonably normal warehouse conditions, as well as those at point of sale. Also, it was felt that an evaluation of accelerated storage test procedures should be considered.

*Delivered before Scientific Section, the Toilet Goods Association, May 13, 1954.

In order to cut the test series to a reasonable size, the following variables were set:

Perfume components were limited to a total of thirty (30)—comprising twenty-five representatives of the principal chemical functional groups and five natural essential oils, chosen for their widespread usage in perfumes. The components used were:

1. Hydroxycitronellal—a not too stable aldehyde
2. Phenyl Ethyl Alcohol Coeur—a stable aromatic alcohol
3. Peach Aldehyde Coeur—a lactone
4. Amyl Cinnamic Aldehyde Coeur—a stable aromatic aldehyde
5. Methyl Diphenyl Ether—a stable aromatic ether
6. Isoeugenol—a reactive substituted phenol which may discolor
7. Alpha Ionone Coeur—a stable aromatic ketone
8. Geraniol Coeur—a stable unsaturated alcohol
9. Gamma Methyl Ionone—a stable aromatic ketone
10. Terpineol—a terpene tertiary alcohol—generally stable
11. Cyclamal (Alpha methyl p-isopropyl phenyl propyl aldehyde)—an aldehyde subject to oxidation
12. Eugenol U. S. P.—a reactive substituted phenol which may discolor
13. Linalool Coeur—a stable unsaturated alcohol
14. Methyl Anthranilate—an ortho amino benzoic acid ester which may discolor
15. Anisic Aldehyde

in Aerosols*

16. Amyl Salicylate—a phenolic ester which discolors in the presence of ferric ions
17. Citral C. P.—a not too stable aldehyde
18. Phenyl Acetaldehyde 100 per cent—a note too stable aldehyde
19. Linalyl Acetate 98 per cent—an ester of an unsaturated alcohol.
20. Geranium Bourbon—an essential oil
21. Terpeneless Petitgrain—a purified essential oil
22. Benzyl Acetate—an aromatic ester
23. Petitgrain S. A.—an essential oil
24. Citronellyl Acetate—an ester of an unsaturated alcohol
25. Lavender Oil 40-42 per cent—an essential oil
26. Methyl Benzoate—an aromatic ester
27. Aldehyde C-10—An aliphatic aldehyde subject to oxidation
28. Bergamot Natural—an essential oil
29. Pine Needle Siberian—an essential oil
30. 10 per cent Musk Ambrette in diethyl phthalate—a nitro musk which discolors

The original stock of each oil was preserved in a single amber glass bottle and used to perfume all experimental samples throughout the test.

It was decided that only two cosmetic products would be used as bases. They were perfume cologne in two-ounce glass aerosol bottles and foam shaving cream in six-ounce "Spra-Tainers."

The cologne concentrate was made up as follows:

Perfume	1 gm.
Water	14 gm.
SD 40 Ethanol	113 gm.

This formula is one that has been used with cologne aerosols in glass and it was felt it would serve as a generic type. It must be remembered that anhydrous systems are not unusual in aerosols and actually have much in their favor from the standpoint of chemical stability.

The shaving cream concentrate was made up as follows:

Triethanolamine Stearate	5.0 per cent
Water	95.0 " "

This formula is not a finished one by any means, but offers the advantage of a single known material which is used as an ingredient in many of the commercial shave foams.

The propellants were limited to two—Pure "Freon-114" for the colognes and 40-60 Freon 12/114 for the shave foams. As was mentioned earlier, the use of the propellants in less critical supply than Freon 114 is being re-explored for cosmetic use.

In the case of the colognes, four packages of each perfume were packed as follows:

Cologne Concentrate	75 per cent
Freon 114	25 " "

Two packages of each perfume were packed the same as above, but less Freon.

In the case of the shave creams, two packages of each perfume were packed as follows:

Pressurized:	
Shave Cream Concentrate (perfumed with 0.3 per cent perfume oil)	93 per cent
Freon 12/114	7 " "
Unpressurized:	
Shave Cream Concentrate (perfumed with 0.3 per cent perfume oil)	100 per cent

It was felt that the room temperature storage samples of unpressurized cologne would be adequate as controls since the behavior of all of the odor representatives in normal colognes is known. However, as a control for the shave cream odor comparisons, fresh unpressurized shave cream concentrate perfumed from the original perfume oil stocks was made up at the time of the odor evaluation—this eliminated the possibility of overtones of odor from the soap being mistaken for deteriorative changes in the perfume.

All variables were stored at room temperature or slightly below for the first two months of the test. At that time all variables were halved and one-half stored at 130° F. for the final month of this reporting period. This offers the advantage of direct comparison of deteriorative changes in odor between normal storage samples and accelerated storage samples. The samples were evaluated olfactorily by three persons in a clean atmosphere after cooling to room temperature. The

(Continued on page 123)

Odor and Olfaction—Biochemical Approaches* PART I

by Paul G. I. Lauffer, Ph.D.

CHIEF CHEMIST, THE GEORGE W. LUFT COMPANY, INC.

One of the most significant developments in modern science is that biology has begun to investigate its classic problems on the molecular level. This enterprise spans the whole gamut of the sciences. Problems which originate in living organisms find their solution in realms ordinarily relegated to chemistry and physics. Anatomy becomes one with molecular structure, and physiology with chemical reactions."

George Wald used the above words as introduction to a review[1] of the brilliant work recently reported on the biochemistry of vision. He went on to say: "The processes of visual excitation provide an instance of this development. Many of the basic phenomena of vision now appear to have their source in the chemical and physical properties of retinal molecules."

Visual Sensation

Wald's success in explaining visual processes in terms of biochemical reactions presages similar success in the field of olfactory mechanisms. Although gross differences in the nature of the two processes are readily apparent, it should be instructive to review very briefly the biochemistry of vision.

Light-Sensitive Pigments

Light falling upon the retina affects three or possibly more light-sensitive pigments,[2] each consisting of a protein combined with a C_{20} aldehyde allied to vitamin A. Let us follow the reactions of one of these pigments, rhodopsin. Light splits rhodopsin into a protein, opsin, and the aldehyde, retinene. Retinene is reduced by cozymase to vitamin A, under influence of an enzyme first called "retinene reductase," but apparently identical with the alcohol dehydrogenase found in other tissues. In splitting away from the protein, the retinene is changed from the cis variety to the all-trans isomer and upon reduction it is all-trans vitamin A that is formed. To reform active rhodopsin, completing the cycle, cis vitamin A is needed. There is some evidence that the eye tissues contain an enzyme which can isomerize vitamin A in the desired direction, but most of the supply of cis vitamin A appears to come via the blood stream from the nutritional supply in the diet. This cis vitamin A is reduced to cis retinene which combines the opsin to produce rhodopsin, which is then ready to accept new light energy and to convert it to a new nerve impulse.

Sulfhydryl Groups and Vision

It has been discovered that the sulfhydryl groups of opsin serve as the point of attachment for retinene. Free sulfhydryl can be titrated against silver nitrate. Using the amperometric method. Wald and Brown[3] added 0.001 N silver nitrate to a preparation of cattle rhodopsin, under dim red light, until the flow of current showed that all free —SH groups had been neutralized. Excess silver nitrate was added to produce a given current flow, then white light was turned on. The current dropped at once, showing that more —SH groups were exposed by the bleaching of the rhodopsin by the light. To re-establish the previous level of current, 0.2 ml. more of silver nitrate solution was required, corresponding to about two —SH groups per three molecules of retinene liberated.

Wald points out that we have here a model, even if it is a far-fetched one, of the excitation process in the eye. In the amperometric cell, light falling upon rhodopsin causes the electric current flowing from the system to diminish in strength; in the eye light falling upon rhodopsin produces an action current in the rods of the retina, which is relayed via the optic nerve to the brain and there produces the perception of light. The key event appears to be the release of sulfhydryl groups, and these groups can generate current by various mechanisms, depending upon the environment within which they are released. Since the —SH group is weakly acidic, its release in a slightly alkaline system

*Delivered before Scientific Section, the Toilet Goods Association, May 13, 1954.

will register on a pH meter as a rise in hydrogen ion potential. It is also a strong reducing agent, and its release in presence of an oxidizing substance could be measured as a change in oxidation—reduction potential. The amperometric titration described above involves the metal-binding capacity of the —SH group, and the binding of sodium, potassium, or other physiological ions may have physiological significance.

Looking beyond the visual process, we can agree with Wald that excitable tissues in general must include molecules which, upon receiving a stimulus, undergo cycles of chemical change and recovery similar to those described in the visual cycle. Visual pigments are especially sensitive to light; in the olfactory organ selective sensitivity to odorant molecules may be looked for.

Trigger Action

An extremely small amount of light is necessary for perception, a single quantum under optimum conditions. Wald believes that this original action serves as a trigger for release of much greater amounts of energy; that is, that an amplifying mechanism is involved. We do not yet know how any sensory stimulus produces an action current, but permeability changes in membranes have traditionally been considered to be involved. However since —SH released from rhodopsin by light produced an electrical effect in a simple solution of silver nitrate, membranes are not indispensable elements of sensory mechanisms.

The Olfactory System

Visual processes have been studied much more intensely and extensively than olfactory. Little is known of the chemical make-up of the olfactory cells; in a standard textbook of physiology,[4] vision is apportioned 85 pages, olfaction-seven pages. Our fragmentary knowledge of olfactory anatomy includes recognition of the human end organ as two small patches of the lining in the roof of the nasal cavity, covering about 2.5 sq. cm. on each side. The receptor cells are unique in both receiving and conducting impulses without intermediate ganglia. The body of the cell is in the olfactory mucosa, right where the odorant arrives when air is forcibly inhaled.

Olfaction—A Short-Circuit Sense

The nerve impulse generated in the cell is carried by its axons directly to the olfactory lobe, which is part of the brain. This very direct connection between end-organ and brain, not found in any other sensory apparatus, has extensive implications for the student of olfaction. It bears witness to the antiquity of the olfactory sense, a circumstance which may well afford a point of attack for investigation of the biochemistry; some of the very simple animals possessing rudimentary olfactory sense should provide convenient experimental subjects, statistically superior to the more temperamental human subject.

Another implication of the direct brain connection is of interest to perfumers, for here we have a way of influencing brain regions not primarily under control of conscious thought. This may account for the subtle and super-rational effect of perfumes upon mood and disposition.

Enzymes and Odor

Many hypotheses have been advanced in an attempt to expound the mechanism whereby odorants produce odor[5]. However most of these theories were formulated without benefit of the most recent work on other phases of biochemistry. One of the most promising concepts is that of Alexander,[6,7,8] who has presented arguments for the conclusion that olfactory action is mediated through biocatalysts or enzymes. Discoveries made largely in the past five years have made important additions to our knowledge of the enzyme systems underlying many physiological processes. Baffling physiological problems have succumbed to biochemical attack.

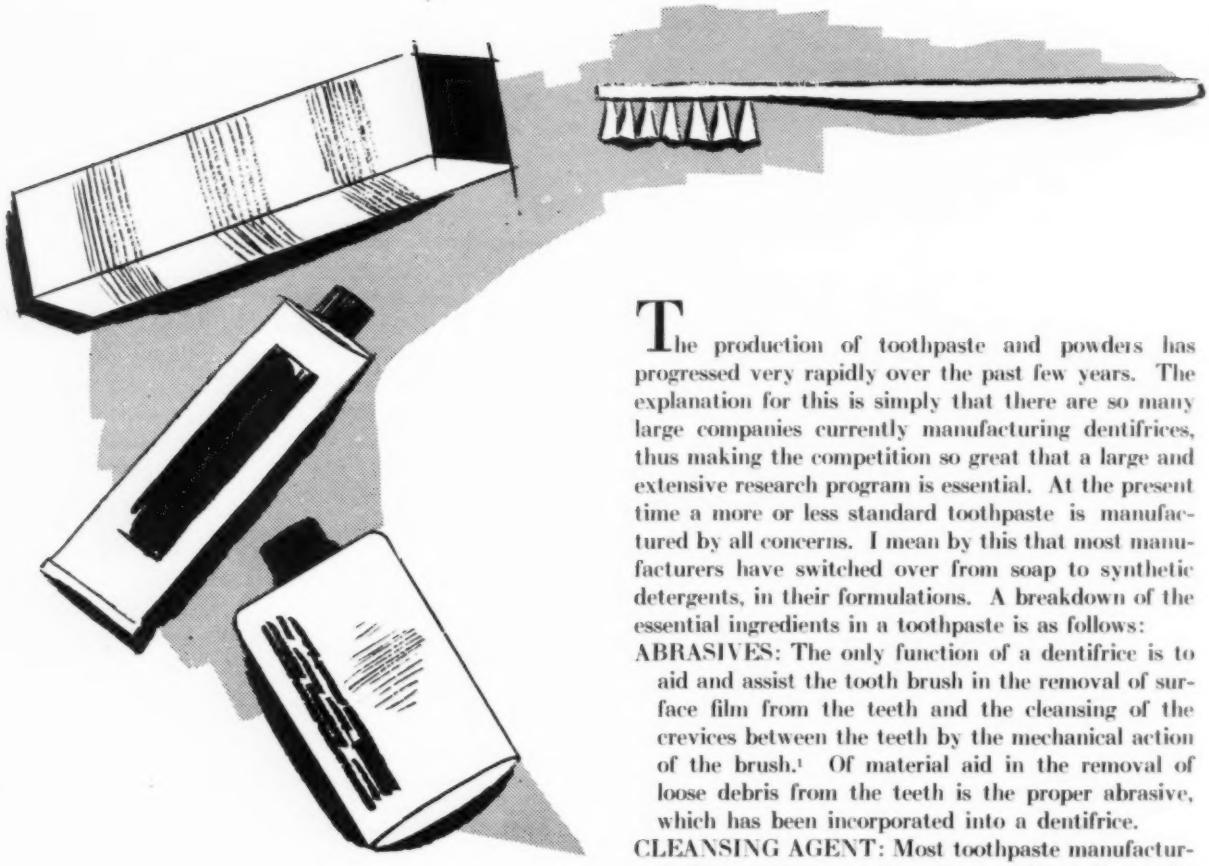
Biological Antagonisms

Studies of the action of sulfa drugs led to increased realization of the important role played by enzymes, and generated a tremendous wave of research on biological antagonisms[9]. Para-aminobenzoic acid was found to be a precursor of the essential folic acid. The enzyme promoting the conversion can be inactivated by sulfanilamide, which is so similar in structure to para-aminobenzoic acid that either will fit the active surface of the enzyme. If sulfanilamide has preempted all available active sites on the enzyme, no folic acid will be formed.

Hold and Fit

The central concept of all this work, applicable to many other cases, is that of exact fit between active chemicals and enzyme surfaces, so that metabolites are

(Continued on page 110)



ORAL HYGIENE

CONDENSED FROM A FORTHCOMING BOOK

by Wm. R. Keithler

The production of toothpaste and powders has progressed very rapidly over the past few years. The explanation for this is simply that there are so many large companies currently manufacturing dentifrices, thus making the competition so great that a large and extensive research program is essential. At the present time a more or less standard toothpaste is manufactured by all concerns. I mean by this that most manufacturers have switched over from soap to synthetic detergents, in their formulations. A breakdown of the essential ingredients in a toothpaste is as follows:

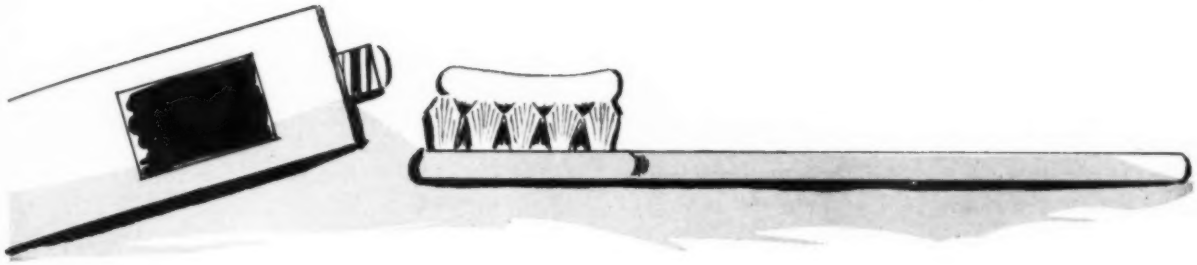
ABRASIVES: The only function of a dentifrice is to aid and assist the tooth brush in the removal of surface film from the teeth and the cleansing of the crevices between the teeth by the mechanical action of the brush.[1] Of material aid in the removal of loose debris from the teeth is the proper abrasive, which has been incorporated into a dentifrice.

CLEANSING AGENT: Most toothpaste manufacturers have gotten away from the use of soap due to its decided adverse effect upon the flavor. Instead, purified sodium lauryl sulfate and sodium lauryl sulfoacetate are being used to a great extent along with other newly developed synthetic detergents. These have greater foaming ability than soap and also may be used in such small amounts that they have practically no influence whatsoever upon the flavor.

SWEETENER: As a general rule sodium saccharin is used to sweeten toothpaste although in some rare instances glucose is used. The two main reasons that saccharin is preferred over sugar is that much less saccharin can be used than sugar to sweeten the same amount of paste and also that the sugar tends to crystallize at the mouth of the tube, thus eventually clogging it and giving the produce an overall undesirable appearance.

BINDERS: There is always room for research in this aspect of toothpaste manufacture. Tragacanth is a very useful binder. Sodium alginate and other water-soluble algins are also quite useful. It is quite possible that some of the newer synthetic gums, such as sodium carboxymethyl cellulose, could be adapted for use as a toothpaste binder.

HUMECTANTS: It is most advantageous from the standpoint of appearance to use glycerine as a humectant, since the finished paste has an excellent gloss. Many manufacturers have been using the



commercial sorbitol solution, or, in some instances, a combination of sorbitol and glycerine in such quantities necessary to secure a gloss on the finished paste and also to give the desired humectant properties. Other compounds, such as propylene glycol, might be used to replace all or part of the glycerine. The author cites this merely as a suggestion and offers no guarantee that its properties will prove satisfactory.

FLAVORS: There are two definite types of toothpaste flavors, namely, mint and spice. These two flavors differ greatly in ingredients, the mint being made up mostly of either a spearmint or a peppermint and the spice being any of several flavors, methyl salycilate, cassia, or anise to name but a few. In Great Britain the preference seems to go more toward anise, while the Americans prefer a mint flavor. This might be due in part to the difference in the composition of American and British toothpastes. A great majority of the English toothpastes are soap pastes, while most American pastes contain synthetic detergents.

It is a requisite of a toothpaste to be able to assist in the cleaning of the teeth without scratching the enamel surfaces. For this reason care should be exercised in the selection of polishing agents, and it should be made certain that there is no grinding sensation when the abrasive is rubbed back and forth between the teeth. Adequate controls should be established to ensure product uniformity and stability.

Certain formulations when subjected to extreme temperatures, either hot or cold, will tend to separate; and, as a rule, this condition can be blamed on the gum. Upon heating to elevated temperatures, in some dental creams, the gel is broken and the suspended abrasives no longer remain suspended. This serves as adequate control for stability. A sample of each batch of toothpaste manufactured should be heated in a constant temperature oven to a temperature of about 100° F. to 120° F. for a prolonged period of time; usually ten or twelve days is sufficient. This heating operation will also answer the question of a possible reaction between the tubes or containers and the toothpaste. In the case of such a reaction gas is liberated, causing the tube to swell; and, in the event that the tube is heated over an extended time, it may quite possibly rupture at the seams due to the liberation of gases.

Drying out of the paste in the tubes is another very serious problem encountered in this formulation, so it is well to store samples at room temperature for about thirty days to ascertain the extent of the drying out of the paste. If drying out does occur, an increase in the humectant used or perhaps the substitution of an entirely different humectant may be indicated.

The most important physical property of a tubed dental cream is viscosity; for, if the paste is too thin, upon squeezing the tube, paste is excreted and rolls out over the mouth of the tube to form a round globule which, when spread on a toothbrush, promptly settles to the bottom of the brush to be immobile between the bristles. On the other hand, a paste too high in viscosity tends to be very difficult to squeeze from the tube, especially in cold weather, so that it is important to have the viscosity of the finished paste such that cold weather will not make it difficult to squeeze from the tube; and at the same time the paste must have enough body to permit an even ribbon to flow from the tube so that the cream lies supported by the bristles across the top of the toothbrush. Since toothpastes in general are very heavy pastes, it is very hard to ascertain with any great degree of accuracy their relative viscosities.

A unique method has been devised by one of the country's leading dentifrice manufacturers for the determination of toothpaste viscosity. The mechanism involved, as well as the technique, is relatively simple. The instrument itself consists of a rectangular frame made of angle iron, open on both the top and bottom. From side to side, lying crossway on the rectangle, are metal rods, 1/16″ in diameter. The first rod is placed at the end of the rectangle; the second bar measures 1/8″ from the first bar; the third measures ¼″ from the second bar, and so on until the distance between the twelfth and thirteenth bars measures 1½″. Each of these bars bears a numerical value—the first bar being zero, the scond, one; the third, two, and so on through number twelve.

The method of testing is not in itself without flaws. Much depends upon the technique of the operator. A sample tube of toothpaste is selected and fitted with another cap which has had a 1/8″ hole drilled through its center. A fine ribbon of the paste is squeezed onto the frame. Starting at the zero bar, the paste is squeezed across so that the ribbon is supported by nothing except the bars. Immediately upon complete extrusion of a ribbon a stop watch is started, and at the end of one minute a reading is taken at the point where the

ribbon has broken, using only the lowest value in case there has been a simultaneous rupture at another point. After a five-minute interval another reading is taken, and the two values are taken as the viscosity of the toothpaste. For example, if after one minute the ribbon had broken between bar Number 5 and bar Number 6, the value taken would be five. Then, after five minutes, the second reading was between the fourth and fifth bars. The reading would be taken as four. Thus, the toothpaste would have a viscosity of five over four (written 5:4). The lower the numerical values, the lower the viscosity; and, in reverse, a higher value means a higher viscosity. In carrying out this procedure it may be necessary to string out several ribbons of paste as the first might contain hidden air bubbles, which would interfere with the readings and possibly cause a breaking at a lower reading than would normally be obtained.

Another suggestion for a possible control might be termed a drying test. Into a tarred container—a small 10 cc. beaker works very nicely—weigh a known quantity of toothpaste. Place this beaker in a 110° F. oven for five days, after which once more weigh the beaker and compute the loss. Allow this container to stand open at variable room temperature for ten days more. Weigh the sample each day and plot a curve to show either loss or gain of moisture.

Practically all of the raw materials going into a toothpaste contain iron in some quantity. This in itself is not a detrimental impurity except in such cases where the paste might go off color due to a reaction between the iron and another ingredient. If a discoloration due contamination by iron should occur, this can usually be corrected by the addition of a small amount of some chelating agent such as citrates, gluconates, or even an ethylene diamine tetra acetic acid salt, although care should be exercised in the use of EDTA in dental creams. The regular sodium salts of EDTA usually employed to sequester iron may not be used in toothpastes since they sequester calcium from the teeth as well as the iron from the toothpaste. Instead, a special EDTA salt is used in these products. This is a calcium complex and will not sequester any more calcium, thus leaving it free to complex the iron and render the toothpaste colorless.

If a detergent, such as sodium lauryl sulfate or sodium lauryl sulfoacetate, is used, a test should be run to determine whether or not there are any sulfides present. Upon prolonged storage, if sulfides are present, the paste will develop a foul taste and odor due to the gradual liberation of SO_2. To be sure that a shipment of detergent is free of sulfides the following test should be run:

To 50 gms. of fresh toothpaste containing no detergent add 1.5 gms. of the detergent to be tested, mix well and tube. Insert into this tube one reagent grade iron wire and store the tube thus prepared in a 100° F. oven for seven days. Then use the toothpaste on a brush and note the flavor. If sulfides are present, there is the unmistakable taste of sulfur dioxide.

Raw materials containing sulfides as impurities absolutely should not be used in the manufacture of toothpaste. It is far better to spend a small amount of time testing the raw materials than to discard several thousand dollars' worth of toothpaste because of an off flavor.

Formulation

The formulation of a toothpaste can be very tricky. Any number of things can happen. The gum can fail to gel properly; the gum may form lumps throughout the paste, or the abrasive may tend to lump together. Much depends upon the maintenance of exact temperatures and the type and amount of stirring used. The wrong type stirrer will whip too much air into the finished paste so that upon cooling, when the paste has gelled, instead of being a smooth cream there is nothing but a great sponge, the air trapped in the paste during stirring, remaining there indefinitely. In case too much air is accidentally whipped into a paste it is possible to remove a small amount of this air merely by stirring the paste after it has gelled. This stirring should continue only 10 minutes or so, as after this time all of the air that can be removed has been removed and continued stirring does nothing but whip more air back into the cream. If such equipment is available, the cream may be deaerated under a vacuum with stirring. About 85-90 per cent of the air can be so removed.

Toothpastes in various parts of the world vary greatly in composition due to the difference in raw materials, both in purity and availability. There is, of course, the effect of climate and humidity upon a toothpaste. The following formulations illustrate the differences between toothpastes manufactured in different countries.

Cuban Toothpaste No. 1

Dicalcium Phosphate	200.00	parts
Calcium Sulfate	408.50	"
Tragacanth	20.00	"
Sorbitol	122.00	"
Glycerine	95.00	"
Water	130.00	"
Sod. Saccharin	1.25	"
Sodium Lauryl Sulfate (purified)	20.00	"
Flavor	14.00	"
Chloroform	1.00	"
Color Red FD and C 19	.97	"

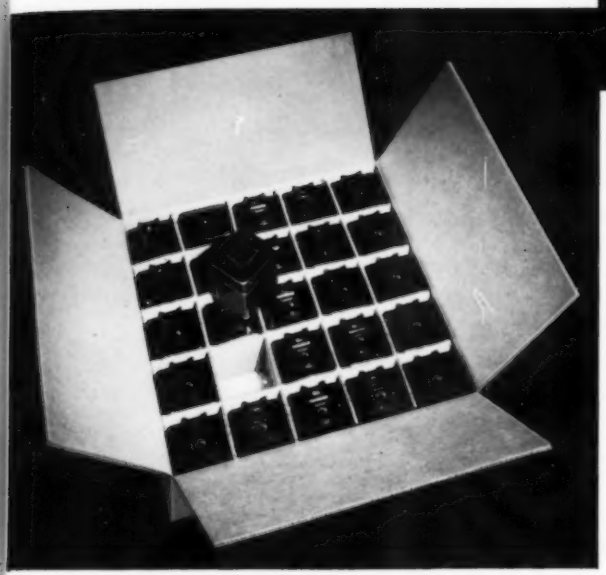
This toothpaste is made by the hot process method, which will be explained later in this chapter. It also might be noted that each of the formulas listed here makes excellent finished pastes, but a certain amount of development will be required due to variations in the raw materials.

(Continued on page 119)

Argentine Toothpaste No. 2

Glycerine	114.000	Parts	by	Weight
Powdered Neutral Soap	30.000	"	"	"
Water	37.000	"	"	"
Saccharine	.522	"	"	"
Flavor	4.716	"	"	"
Chalk	11.000	"	"	"

CREATE
INTEREST



SHIP WITH
SAVINGS

COLLECT SALES
DIVIDENDS

Write for free booklet
"How to Prepak in Corrugated Boxes."
Hinde & Dauch,
Sandusky 9, Ohio

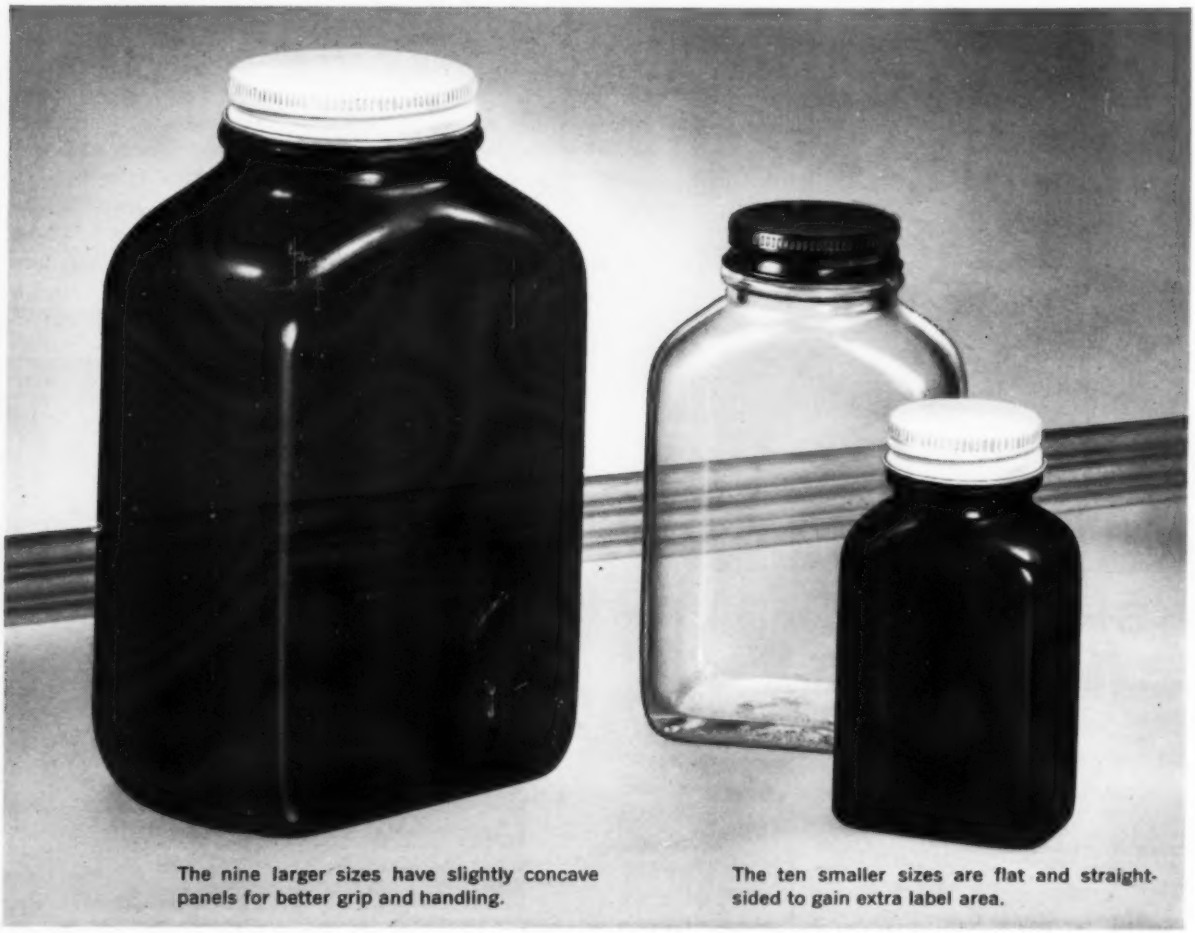
HINDE & DAUCH

Authority on Packaging

40 SALES OFFICES • 17 FACTORIES AND MILLS

NEW!!

Complete line for your dry products



The nine larger sizes have slightly concave panels for better grip and handling.

The ten smaller sizes are flat and straight-sided to gain extra label area.

full family line

There's a size
for every need—
19 in either amber
or clear flint glass.
And only 7 cap sizes
fit all containers.

SHELF-PACK CONTAINERS

with many advantages for you

EASY TO USE—

Extra-wide mouth makes filling and dispensing tablets, capsules and powders so convenient. The 9 larger sizes have slightly concave panels for better grip and handling.

QUICK IDENTITY—

No matter how you display Shelf-Pack containers, brand identity is improved because labels can be placed on one, two or three panels.

DESIGNED FOR STRENGTH—

The compact, space-saving design adds sturdiness... helps to assure that your products will be brought to your customer safely.

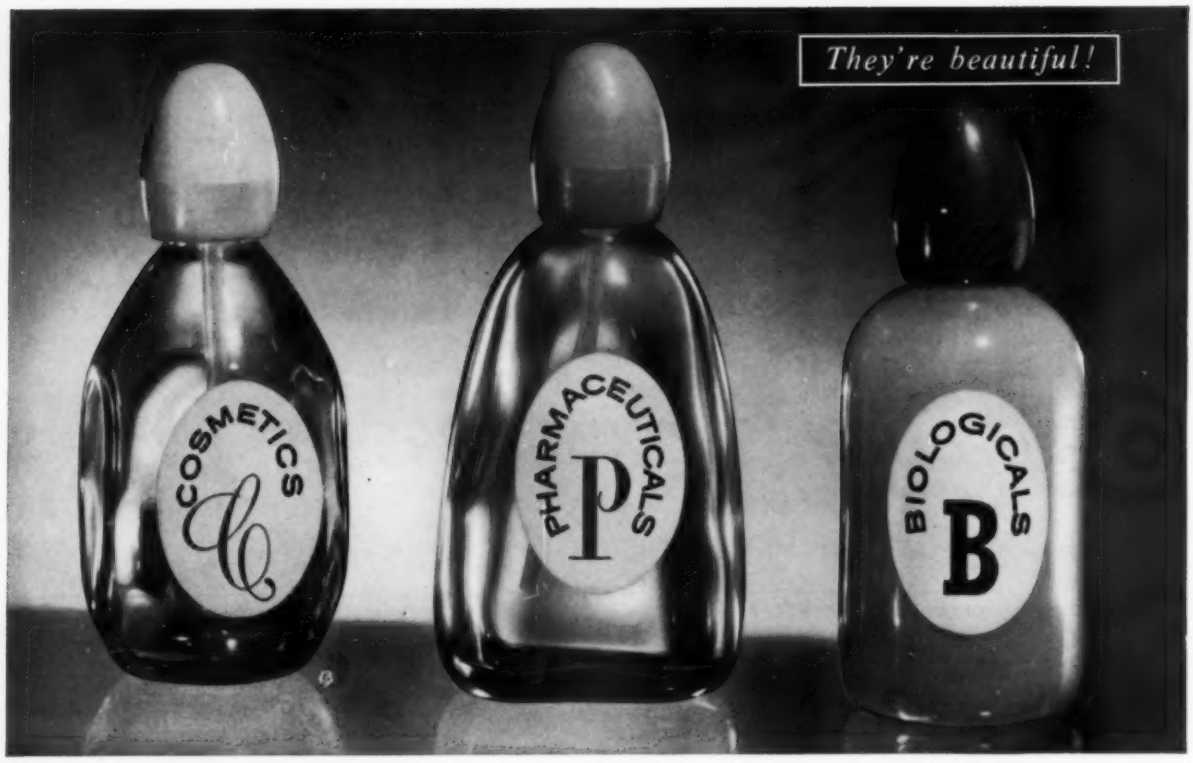
SAVE SPACE

The new Shelf-Pack containers can save up to 20% of valuable retail shelf space. Five Shelf-Packs usually take up no more space than four rounds.

ORDER SHELF-PACK CONTAINERS TODAY—the exciting, new line of Duraglas Containers for dry pharmaceuticals. Our local branch office is at your service.

DURAGLAS CONTAINERS
AN (O) PRODUCT

OWENS-ILLINOIS
GENERAL OFFICES • TOLEDO 1, OHIO



New Glass-Lined Plastic Bottles Combine Aerosol Spray and 100% Safety

25-foot drop onto concrete fragmented the glass of this bottle. But not one sliver escaped through the tough plastic wrap.

Plastic wrap, here shown cut away, makes these Wheaton bottles always safe.

Available in both stock and custom-made designs

Here for the first time are put together the beauty and sales appeal of a distinctive glass bottle, the convenience and sales appeal of aerosol spray, and the safety and sales appeal of plastic. That makes three different kinds of sales appeal in one container . . . a sort of dream container combining everything the sales, advertising, production and insurance departments could wish for.

You can see for yourself, in the photograph, the beauty of the three stock designs. Your own special design can be moulded in sizes up to 4 ounces. You have your choice of transparent, translucent or opaque plastic, in a wide range of colors. We can silk-screen any design in any color on the plastic or the glass itself.

These bottles always give a true aerosol *spray*—not a squirt or stream. The plastic coating means that dangerous explosions can't happen. The glass isn't likely to break, even when dropped onto a bathroom floor. But if it should, *it cannot cut through the plastic cover.*

Perhaps you have a product that can benefit by the unique combination of practical and promotional advantages offered by these bottles. Then you'll want to write for full information today.

WHEATON PLASTICS COMPANY

MAYS LANDING, N.J.

Ball RADIO-CONTROLLED SHIPPING CENTER

CUTS TRUCK WAITING TIME IN HALF!

Now you can eliminate one important cost in your operation—the hours your truck and driver wait, while your order is being assembled. Have your man phone us, collect, en route, giving expected arrival time, and your order will be ready to load!

This new service will definitely save you many dollars per haul. This is made possible by the greatly enlarged capacity of our Shipping Center, *plus radio-controlled* tow trucks to pre-assemble your order in record time, any hour of the day or night.

Another good reason why it pays to call Ball, first of all!

BALL BROTHERS COMPANY

Offices in All Principal Cities

LET US SEND YOU our new brochure, "The Door to Better Packaging." It contains interesting details of the many tests used to maintain carton quality and economy. Address Ball Brothers Co., Dept. DC7, Muncie, Ind.

Call BALL for—

QUALITY GLASS CONTAINERS, METAL CLOSURES, and PACKAGING ENGINEERING SERVICE

© 1954, B. B. Co.

PLANTS AT: MUNCIE, INDIANA • CHICAGO, ILLINOIS (Closure Division) • HILLSBORO, ILLINOIS • OKMULGEE, OKLAHOMA • EL MONTE, CALIFORNIA

Correct particle size... another sales-making aerosol feature

boosts popularity of this modern method of packaging

Correct particle size is important. It means maximum effectiveness in dispensing all types of products . . . and that's what you get with aerosols. Insecticides, room deodorants or other types of space sprays, for example, are dispensed in such a way that active ingredients literally float in the air for long periods of time. Dozens of other products all do a far more effective job than could possibly be done by any other method of dispensing.

In addition—aerosols are easier to use, cleaner, quicker, more economical. They have *new* sales appeal . . . and more of it. They capture the curiosity and interest of consumers . . . invite buying on impulse and they've steadily gained in popularity with consumers everywhere.

More and more manufacturers are pressure packing an ever-increasing variety of products. In 1953, they produced a total of more than 140,000,000 units! The vast majority of these new aerosols contain a Du Pont "Freon"* propellent, and there's good reason why. These propellents are safe . . . nonflammable, nonexplosive, virtually nontoxic and as pure as scientific methods of manufacture can make them.

Consider aerosols yourself. Examine the possibilities of using this modern method of packaging some of your own products. There are many contract loaders who will package your aerosols to specifications in any quantity. And should you want technical assistance, write to us. An interesting booklet on aerosols, "Package for Profit", is yours for the asking. Send the handy coupon for it today. E. I. du Pont de Nemours & Co. (Inc.), "Kinetic" Chemicals Division, Wilmington 98, Delaware.

KINETIC

FREON

SAFE PROPELLENTS

*"*Freon" is Du Pont's registered trade-mark for its fluorinated hydrocarbon propellents*

DU PONT

REG. U.S. PAT. OFF.

Better Things for Better Living . . . through Chemistry

PIN THIS COUPON TO YOUR COMPANY LETTERHEAD

E. I. du Pont de Nemours & Co. (Inc.),
"Kinetic" Chemicals Div., Wilmington 98, Delaware.

- ☐ Send the booklet: "Package for Profit".
- ☐ Send market-research data.
- ☐ Interested in technical assistance.

Name_____

Title_____

The Bad Deal

by Frazer V. Sinclair

We suspect that the subject for discussion which will attract increasing heat and energy in the near future is the effect and the influence of the "bad deal" on business health.

This particular industry of ours, except for ethical products, has become more and more deal and promotion ridden. In the last few years a competitive orgy of bad deals has kicked into the gutter the profits of some manufacturers and threatened those of others.

While the cosmetic industry has been particularly infested by this disease, it is apparent in almost every branch of selling branded, packaged goods. Next to cosmetics it is probable that the food industry, particularly cereals and soaps, have been entrapped in such a welter of deals and promotions that the public is largely forgetting the quality or the brand name of the thing they are buying.

We are just beginning to bring into the open, in the trade press, at conventions and other public forums, a frank discussion of this disease. The word disease is used advisedly, because in some of its forms it is certainly a disease. Whether the causes of this disease lie in a feverish ambition of so many retailers and manufacturers to attain an always larger and increasing gross volume of sales without regard to profits or business health or whether it is because the markup of most packaged merchandise has been so high that there is too much money to waste on distribution or whether some other fundamental reason is at the bottom of this epidemic remains to be seen as discussion develops.

At the recent convention of the Toilet Goods Association, in a panel discussion among leading manufacturers and retailers, a comparative newcomer to this industry as a manufacturer, that is, Esteé Lauder, stole the show. Esté Lauder has rapidly come to the front in national attention in the cosmetic industry as a dynamic saleswoman. It was her remark, during this panel discussion, that many consumers asked her, when she was helping one of her retail accounts behind the counter, whether she planned to have some kind of a deal or promotion on her products, stating that in that case they would delay buying and wait for the deal that gave the audience the biggest kick in the entire convention.

Just recently a leading advertising agency man associated with one of the largest food companies said "People just won't buy without a trick or a gadget or a deal of some sort. We are teaching the consumer not to buy the product we advertise unless something else is tied to it.

Just a few weeks ago, Nathan Ohrbach, Chairman of Ohrbach's, Inc., said exaggerated price cutting, and overemphasis in retailing promotions leads to hesitation on the part of consumers to buy.

"How foolish can you get," continued Mr. Ohrbach. "Such exaggerated reductions induce consumers to believe that normally prices are excessive or that reasonable price cuts are only the first step on the way down."

Leading department store buyers for the cosmetic department have been complaining to manufacturers in this industry for the last two or three years. Some of these complaints are sincere, thoughtful and constructive. Others have obviously been of the tongue-in-cheek variety because a number of these same retail buyers have been coming to New York for the deliberate

SHEFFIELD TUBES

package for a revolutionary poison-plant remedy

ZOTOX, product of Zotox Pharmacal Company, Inc., Stamford, Conn., chemically neutralizes the violent poisons — poison ivy, oak, sumac. It removes excess poison, and prevents its spreading . . . offering blessed relief! So effective is Zotox with Zirconium that, in most cases, it actually prevents inflammation when applied up to one hour after contact.

SHEFFIELD PROCESS TUBES . . . the safer, tougher tubes . . . are here again chosen as the ideal package. During more than three generations of service to the pharmaceutical industry, Sheffield Tube has been constantly associated with those who contribute significant advances in treatment of pain and disease.

THE SHEFFIELD TUBE CORPORATION
Factory and Home Office: New London, Connecticut
Sales Offices: New York • Chicago • Los Angeles

HAZEL-ATLAS GLASS COMPANY

WHEELING, WEST VIRGINIA

Always Style Conscious

New York, New York or Pittsburg, California—always style-conscious is Mrs. Consumer.

That's why every piece of H-A Cosmeticware is designed and planned with modern smartness.

Pack your cosmetic products in style-conscious H-A Cosmetic Containers.

THE BAD DEAL *(Continued)*

purpose of shopping around for deals and have in fact, in many cases, combined their complaint to a manufacturer about deals with the following question as to whether the same manufacturers had anything hot or new.

Nevertheless, there is a growing and increasing awareness among leading retailers and manufacturers that the bad deal is leading each of them into a period of profitless prosperity with booming volume and declining profits. Some leading manufacturers are beginning to realize that their competitive urge to beat out their neighbor in size and gross volume may be satisfying to the ego but is holding declining satisfaction to the owners or the stockholders.

It is also occurring to many in the industry that an important reason for the decline in effectiveness of their advertising dollar can be laid more than anything else to the disillusionment of the consumer because of the bad deals.

When a leading retail organization and particularly a super-market food chain complains to a leading manufacturer about the uneconomic effects of a promotion this would certainly normally be classified as a man-bites-dog situation. But so much in tune with the times and so clear a recognition that something unhealthy is happening to business is this complaint that it can hardly be classified that way as of today.

Safeway Stores recently engaged in a series of letters with one of their leading food vendors. The discussion brought out in these letters should be of vital interest to everyone engaged in marketing a branded packaged product in retail stores.

The promotion which brought about this correspondence involved a 12-oz. bottle sold at a price identical with that of the manufacturer's 6-oz. size, resulting in an identical gross profit. At first glance, the letter said, the deal looks like an acceptable one for the retailer as well as the consumer. In some respects it could be considered so if it weren't for three things. These three objections are:

1. That the regular 10 oz. size is still on the shelf to sell at the regular price of 98 cents each, on which sales will stop while the deal is on. Keep in mind that the normal gross profit on the 10 oz. size is $4.70 per dozen while the gross profit on the deal is $1.92 per dozen; a loss in profit of $2.79 per dozen.

2. Since this deal is priced to lure customers from other competitive brands, the retailer stands to lose his normal gross profit on those brands.

3. Since there is no handling allowance to compensate the retailer for handling the extra weight, he sustained an added cost.

The Safeway executive then continues to ask, "Where does the retailer get off on such a deal? If the deal was such as to broaden the market by persuading more people to use the product, rather than turning customers from one profitable brand to the deal, no complaint would be involved." In succeeding correspondence the chain lists eight "objectionable forms" found in deals and promotions.

These objectionable forms are the particular headaches of the food industry. This industry also has our objectionable forms and we would like to list here what, from our observation, are the principal uneconomic features of so many of the present-day deals and promotions.

In listing these objections, we hasten to add that we are not in any sense condemning all promotions or deals. This industry has probably always had promotions and probably always will have them. There are many good promotions. They are based upon sound thinking both for the present and the future, and they are valuable stimulants to consumer interest or for the introduction of a new product or for many other sound, fundamental reasons.

Here are what we think are the uneconomic aspects of the bad deal as we know it today. We think that a deal is bad when:

1. It doesn't contribute to an increase in consumption as a direct or indirect result of the promotion.

2. When consumers are taught to wait for a deal before buying.

3. When the public loses confidence in regular values and prices.

4. When consumer advertising is weakened i.e., it can't sell on the merits and the value of the product but must wait for a deal or a gadget to perform saleswise.

5. When staples, classic lines and brand names which are the lifeblood of an established, reputable store and a manufacturer become subordinated and weakened.

6. When there is a tremendous waste of time and energy by the store and the manufacturer for no fundamental gain, that is, in profits or in new customers or in a new satisfaction for old customers or in a gain in consumer respect.

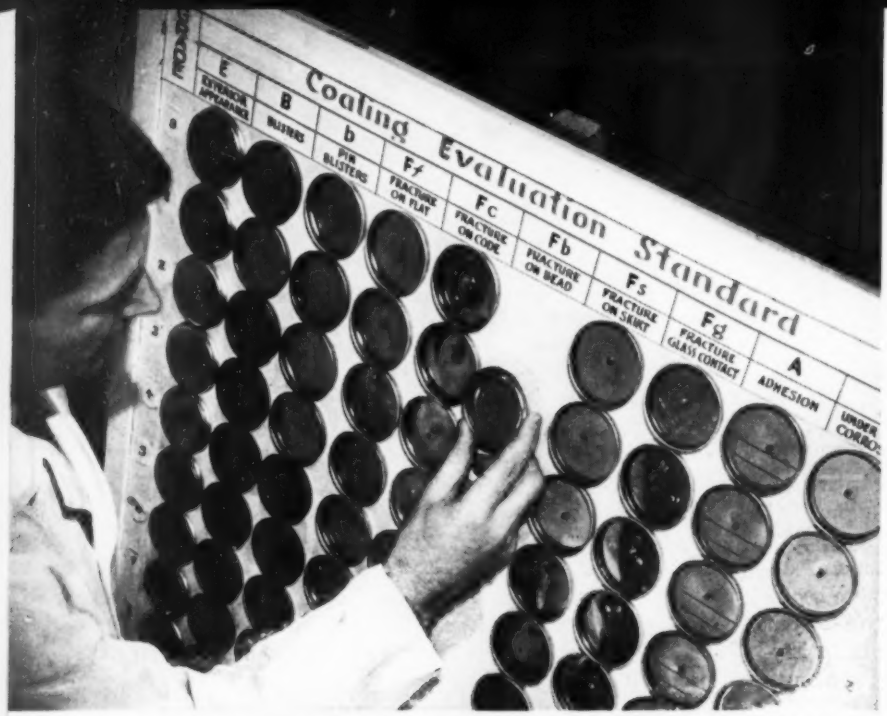
These seem to us primary marks of a bad deal.

We hope the discussion on deals and promotions spreads and becomes a frank open discussion. We believe that a point has been reached where the health of branded and packaged merchandising is involved, where an important part of the value of advertising is being threatened and where the entire attitude of the consumer toward our method of doing business is undergoing a critical change. The sooner this thing is pushed into the open, from our viewpoint, the better.

Research
makes better metal closures for you

The camera calls on the Duraglas Center; here is what it sees—

One of the jobs assigned the Research Department of the Duraglas Center, the world's largest glass container laboratory, is to make good closures even better.



Closures must protect your products for indefinite periods of time. Because some products are chemically more active than others, each must be carefully analyzed before coating and liner is selected.

The contour comparator magnifies up to 60 times to help show how the container and closure fit.

Testing closure, liner, container. Tests are constantly being conducted to provide the best seal for a specific product.

Minimum tightness of a cap is essential. This torque tester tells how to adjust capping machines for the right amount of twist pressure for good sealing and easy removal.

BEFORE:
This package lacks the finishing touch to compete successfully in today's self-service selling.

AFTER:
A smart closure and label complement each other—make this a salespackage that's able to attract impulse sales.

METAL AND PLASTIC CLOSURES
AN (I) PRODUCT

OWENS-ILLINOIS
GENERAL OFFICES · TOLEDO 1, OHIO

Packaging and Selling

Package Influences

The packaging industry is becoming very conscious of the fact that one of the chief forces in bringing about drastic changes and evolution in packaging methods is the changes that are taking place in distribution, particularly in retailing.

The large growth in automatic vending machine retailing, the dramatic growth of self-service in supermarket grocery stores and particularly sociological or psychological changes in consumer buying habits are causing a great deal of heavy thinking in packaging circles.

One of the most interesting observations, from our viewpoint, was cited in a panel at the recent packaging exposition—that is, the report that the Sears-Roebuck retail stores do more than half of their business in less than twelve hours of the week (Saturdays and evenings). With this heavy concentration of traffic packed into so few hours, it is obvious that the package must contribute the maximum to display, self-instruction and self-selling and to convenience in handling both by store management and by the customers.

But It Still Produces

A few issues ago, we quoted the opinion of a group of business leaders in regard to television in which such words as "disgraceful," "irritating," "absurd," "exaggerated," "puerile," etc., were used by these executives to express their opinion of the television commercial.

Early this year, Edward L. Bernays, a leading public relations consultant, brought down a storm of anger from the television boys when he produced a survey of "opinion leaders" that was equally critical of TV commercials.

At the time of this survey, TV leaders, put out various hints that these dissatisfied opinion leaders and business leaders were "eggheads" and were not at all typical of the way the public is reacting.

Now Mr. Bernays has finished a second survey, this time among us common people, and the result is that the ordinary Joes are just as emphatic in thinking that television commercials smell, and not very nicely.

To quote from a report on this survey, a New York barber states a great majority of TV commercials are "fakers, liars and nerve-wracking to listen to." A beauty parlor operator in Boston gives the opinion that "commercials of products I am familiar with are a farce and a lie." In Chicago, a bartender tosses TV commercials out the window with the terse remark, "too much borax and bunk."

After listening to reports at the recent Convention of National Advertisers, where there was something approaching a frank discussion of proprietaries, cigarettes, beer, garden supplies and other advertising based upon good taste, believability and the elementary presence or absence of the truth, this opinion of television commercials taken from both sides of the railroad track makes us wonder just what advertising has that it can still produce.

Don't Discount Salesmen

We already have had the convention via television and certainly we have had plenty of so-called demonstrating and selling to the consumer by television. Now one of the television geniuses is predicting that the "knock-on-the-door, pound-on-the-pavement" type of package salesman is on his way to joining the dodo.

In the future, a single master salesman, "Standing before a camera in his home office and speaking to buyers sitting in their own chain store offices before a buyer's screen will show with full, rich color the new product submitted for their consideration."

"The electronic salesman would show the package, open it, point out its packaging advantages, pour out the product, show it and demonstrate it."

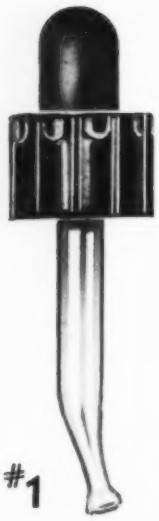
"It will be the end of all private special favors. For there on the buyer's screen for all of us to see will be the price, the terms and the delivery date—giving all retailers equal opportunity to buy wisely and well."

Maybe this is really what we are headed for. We are willing to admit that anything could happen in this atomic, automatic, electronic, chemical age. Nevertheless, we expect to see salesmen around for quite a while.

Lost Sales

The basic difference between the warehouse and the retail floor space is that in the latter the products are either openly visible to the public, or retail salespeople tell the public they are available. According to a recent survey, it would seem that there is a lot of room for investigation to determine just how many products are really visible or in the conscious mind of the retail salesclerk and how many are any better off than if they had remained in the store's warehouse.

A prominent cosmetic manufacturer with a specialty product now selling at about three million dollars a year, for sale mostly in department stores, with advertising running at about $400,000 a year recently questioned over 2,000 women who purchased this

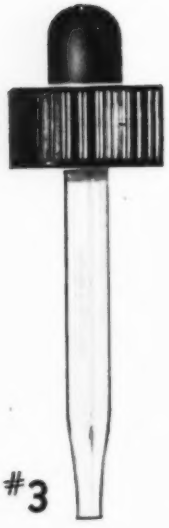


New Perfection DROPPING PARTS

For Attractive Appearance . . .
. . . Perfect Performance

The New Perfection line of dropping parts is designed to meet your exacting demand for modern-looking units that function perfectly. We know that the user's satisfaction with your product may depend upon the reliability of the dropper—And, New Perfection dropping parts present your preparation at its very best.

The New Perfection reputation for excellence is maintained by use of the best quality materials, scrupulous attention to cleanliness and rigid inspection of all parts before delivery.



DROPPER GLASSES

are available in a wide variety of styles and sizes: plain or CALIBRATED in any color to mark specific dosages.

BULBS

are supplied in many styles and colors. Oil-Resisting AMEKINE synthetic rubber is used for oil preparations; natural rubber is supplied for other products.

CAPS

of plastic or metal, can be furnished in a complete range of sizes and colors.

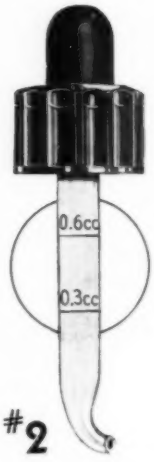
BOTTLES

in an attractive modernistic style in Amber, Blue, Green or Clear glass, are available, complete with dropping parts, in the following sizes: 2 cc., ⅛, ¼, ½, 1 and 2 oz.

DROPPER GLASSES CAN BE

CALIBRATED
IN COLOR

An inexpensive extra that adds great convenience to the use of your preparation. The dosage you desire in the color you specify is accurately and permanently printed on the dropper glass. Trade-marks and firm names can also be imprinted.



We Can Supply Dropping Parts To Fit Your Bottles or Furnish Complete With Our Own Bottles

Write for Samples and Quotations

PENNSYLVANIA GLASS PRODUCTS CO. INC.

"Glass Goods of the Better Kind"

430 N. Craig Street • Pittsburgh 13, Pa., U. S. A.

product. These women were asked if they knew this product was in existence or available at the store before they made their purchase.

Less than one per cent of the women who purchased this product knew previously that any such thing was in existence and only 10 per cent said that it occurred to them it would be available in the store.

In commenting on this situation, the manufacturer had two points to make—(1) that in spite of their advertising and the success and uniqueness of the product, they were completely at the mercy of the store for display and with the store salesgirl for showing and, (2) that they probably had a sales potential of willing buyers amounting to three or four times their sales who failed to realize that this product could be purchased while they were visiting the toilet goods department.

Believe It or Not

Incredible things can happen in business, and sometimes they do happen. It would be highly interesting and instructive to businessmen if somebody with the proper contacts would compile a "Believe It Or Not" for business.

Cosmetics manufacturers who are long experienced in the employment of demonstrators placed behind the counter in retail stores have a particularly choice assortment of stories of what can happen in business that from the outside does seem incredible.

For instance, take the story of the cosmetic demonstrator in a prominent retail store in a Far Western city that rang up sales exceeding $100,000 a year for a period of over ten years. This girl was famous in the cosmetic business. She was continually called East to appear at the manufacturers' conventions where she made speeches, had medals pinned on her and was continually impressed with the idea that nothing was too good for her. At the same time, the retailer was showering benefits and rewards on this saleswoman of conspicuous ability.

From the manufacturers' viewpoint, these sales were on the up and up. Incredible as these sales were from a comparison of every other store and every other salesgirl and demonstrator, it was on the record in their Accounting Department that the orders were received, the goods shipped and the merchandise paid for by the retailer.

It was only after more than ten years' selling that the bubble burst. This happened because an employee in the cleanup department thought that this salesperson was interfering or trying to take his job away from him because, before opening hours in the store, she was sweeping up broken glass and carting it to refuse disposal, which was his particular job. When the exposure came, it was found that this brilliant salesperson was not only selling but also giving away a large amount of cosmetics and in addition, was actually using a hammer which she kept concealed in the store to break up merchandise and send to the ashcan. Just why the store's accounting department never discovered this situation is still a trade mystery.

There is also the story of another salesgirl, a perfume demonstrator, who for a brief period attained a very high sales record through the fortunate circumstance of having an open hole, that is a broken knot-hole, in the floor just beneath her position in the department. Fully half of the perfume and cologne which she reported as sold was poured down this hole to an empty room in the basement.

There was also the authentic story of another demonstrator who many years ago, when face creams were based upon natural vegetable oils, actually ate the company's strawberry cream, thereby accounting for a reported turnover of nearly 20 per cent more jars than actually moved into consumer hands.

We read every once in a while of the bank teller who juggles the books or his records for a period of several months or even years before discovery. We don't realize how often this takes place in retailing.

As one manufacturer remarked when he heard the first part of this story, "What we need today is a lot more hammers behind the retail counter."

Big Time

Over one billion dollars was spent by advertisers during 1953 in magazines, newspapers, radio and television, according to the Publishers' Information Bureau.

Out of one hundred leading advertisers are the following: Colgate Palmolive Peet Co., American Home Products Corp., Sterling Drug, Inc., Miles Laboratories Inc., Bristol Myers & Co., Johnson & Johnson, Andrew Jergens Co., Carteer Products, Inc., Block Drug Company, Inc., Hazel Bishop, Inc., Lambert Co., Helene Curtis Industries, Jules Montenier.

Some Put P.O.P. First

Frank E. Delano of Foote, Cone & Belding, at the Point of Purchase Advertising Institute Symposium said: "I'd like to suggest to those advertising agency men who are present that they try to understand and appreciate the value of point of purchase a little more fully than they do. I will admit that some agency men may ignore this important cog in the wheel of advertising and promotion. They are not only short-sighted but just plain stupid. I can only say that it has been my privilege to have been associated with a number of successful advertisers who on many occasions think first of point of purchase rather than last."

Brand Loyalty

Among the many deepening problems that packaged goods merchandisers are facing today, two seem to stand out in intensity. These are the decline in brand loyalty and the decline in the respect for, or the effect of, consumer advertising at the critical point-of-sale.

In their fourth motivational study made by Social Research, Inc., for the Chicago Tribune, this time on soap and detergent brands, only 14.7 per cent of consumers are undivided in their loyalty to particular soap and detergent brands.

This study showed a very low degree of recognition of advertising claims. When asked to identify seventeen different product claims including one that was made

THE *Aerosol Valve* FOR YOUR PRODUCT *by Precision*

• So widespread has been the public acceptance and demand for self-dispensing packages equipped with colorful Precision valves, that new type products and additional brands are added daily to the long list enjoying the plus values offered by Precision. To keep pace with this tremendous growth, Precision's production and research are continually expanding both here and abroad so that your package may have the merchandising and technical advantages of a Precision valve regardless of the product, container or filling method involved.

Why is Precision the Leader?

DESIGN . . . The wide range of Precision valves featuring positive, fingertip operation assures a successful solution to your specific spray characteristic requirements.

CONTAINER . . . Precision has a valve engineered for the aerosol container of your choice plus the widest selection of plastic colors to enhance the beauty of your package.

PRODUCTS . . . Plastic construction eliminates corrosion enabling Precision valves to perform efficiently for all products whether foam, residual or true aerosol.

FILLING METHOD . . . All types of aerosol products with Precision valves, are being filled successfully by pressure as well as refrigeration at the lowest cost.

QUALITY . . . Precision's basic research, production skill, development techniques and 100% inspection of over 100,000,000 time-tested valves is your assurance of high quality.

ECONOMY . . . The highest plant production efficiency, as well as the lowest rejection rates for filled containers, assures maximum economy with Precision valves.

AVAILABILITY . . . The world's largest aerosol valve manufacturing facilities, are combined with the latest production methods and techniques, to give production schedules that assure prompt deliveries.

• We invite your inquiry to enable our staff of aerosol valve technicians to work cooperatively in satisfying your valve requirements.

PRECISION

Precision Valve Corporation

700 NEPPERHAN AVENUE • YONKERS 3, NEW YORK

up just for the study, most women named Tide as the product. Most housewives stated that a good many of the current advertising claims were unimportant.

Time Costs Money

Just to show you what it means to be big, Chairman E. H. Little of Colgate Palmolive Company stated at the annual meeting that while only a few years ago a new product could be introduced with one million dollars, it now costs five million or more to do the same job.

We would like to suggest to Mr. Little that he consult on this subject with such companies in this trade as Breck, Revlon, Shulton, Dana, Lanolin Plus, Evyan and many others too numerous to mention. Somehow, we never had the idea that these folks had five million dollars hanging around when they started.

Perhaps if Mr. Little had stated that there was always a feeling of urgency when you get big and that it takes five million dollars to do in six months what lots of other people are content to take five years to do, he would have been more nearly accurate.

Packages for Brand Identification

National advertisers are today aggressively pushing 150,000 brand names while the average consumer's entire vocabulary amounts to only 15,000 words.

In the cosmetic industry alone, there are registered over 40,000 trade-mark names still valid of which certainly over 20,000 now have commercial existence.

We do not think that the average vocabulary exceeds 3,000 words and that 15,000 words would practically denote genius. We have stated before that a sales clerk in an average retail store would have to learn the equivalent of fluency in a foreign language to be familiar with all of the cosmetic and toilet trade-mark names in stock.

This absolute incapacity of the consumer to remember or to even have a dim recognition of a fraction of the brand names advertised is one of our dominant problems today presented to the packaging industry.

One of the original functions of packaging and one that is still in use today in many foreign countries is to give brand recognition to the product through color, shape, a trade-mark symbol or some other individualistic form of identification to the buyer.

This primitive conception of packaging has been disappearing in this country and we hear very little of such famous figures as Aunt Jemima, Phoebe Snow, the Michelin Tire figure, or a host of other former, vivid visual ways of personal identification.

Good Public Relations

A few big employers are getting the idea that it is good public relations to let their community know, in a graphic way they cannot fail to understand, the importance of that company to the community.

As an example of a very effective way of accomplishing this, Gorton-Pew Fisheries gave each of its 400 employees $25.00 from their pay in a bag of silver cartwheels, and urged these employeees to use this money with local merchants for current expenses. Said Mr. Bundy: "We are just trying to show people the importance of the fishing business to the economic well-being of the city."

Retreat of the Super-Market?

Here and there around the country there are signs which indicate that the big food stores may be substantially slowing down in developing additional non-food departments. Instead of a continually expanding force in marketing, it may even be that food stores will face a reversal of the present trend toward non-food products.

On the Pacific Coast where the early pioneering in non-food marketing in grocery stores took place, there have been quite a number of reversed trends. Some lavish departments in cosmetics have been closed out and in particular it is reported by returning salesmen that the sale of non-staple cosmetics such as lipsticks and colognes have fallen flat on their face in self-service super-market retailing.

The A & P Food Stores which have been less enthusiastic than many of their competitors in this dreamworld of one-stop-shopping and local conglomeration retailing have recently closed out the department handling comic books. According to the A & P, "the handling of comic books is not economical. They interfered with the company's primary business, and space could better be used for food."

Multiple Packaging

Multiple packaging seems to be spreading from cigarettes by the carton and soft drinks by the six-bottle unit to other industries. There does seem to be a growing consumer trend to shop less often and to buy for a longer period of use in each shopping tour. Apparently shopping enjoyment for family routine needs is nowhere near what it used to be. The one- or two-a-weeks call at the grocery store is more and more replacing the daily or every-other-day visit.

The confectionery industry and the soap people are riding this multiple package wave demand. It would seem that this new consumer habit would have a number of applications in our industry.

Huge Children's Market

Arno J. Johnson, a Vice President and Director of Research for the advertising agency, J. Walter Thompson, is a very vocal prophet on our expanding economy at trade conventions and other places. At the recent meeting of the Retail Association of Chain Drug Stores, Mr. Arno prophesied that living standards can be increased one-third by 1960. Mr. Johnson also stated, "There has been a five-fold increase in the discretionary spending power in our population between 1940 and 1953." We have also, according to Mr. Johnson, 65 per cent more children under the age of five years in the United States today than we had in 1940.

It must be admitted that the trend and the historical record of the last fifteen years gives Mr. Johnson's

When the door is opened

our tailor-made packages begin to SING

Containers for many products are discarded after one use. But your proprietary products have to live in their containers for weeks or even months. Every time the product is taken from the bathroom cabinet or dressing table, the package can please—or disappoint. Continental takes infinite pains to see that its lithographed metal containers for toiletries and powders *always* please. They're good to look at, easy to use, and their protection *lasts*. For a tailor-made package for your product—and tailor-made delivery, engineering and research to match—call on Continental.

CONTINENTAL CAN COMPANY

Eastern Division: 100 E. 42nd Street, New York 17
Central Division: 135 So. La Salle St., Chicago 3
Pacific Division: Russ Building, San Francisco 4

prophecy a firm foundation. It is rather startling to us to read this one statement that we now have 65 per cent more children younger than five years than we had just fourteen years ago. Certainly this makes a heartening market figure for the future. It also should bring about some very heavy thinking about educating these future consumers and about opening up many interesting prospects for products in the children's market.

Lagging Sense of Smell

On several previous occasions, we have felt the urge to complain about the imagination and energy which has been used to build up color as part of our daily life compared to the inertness with which the people concerned with odor have tried to spread the use of this compelling appeal to a predominant sense.

At an exhibit at San Francisco's Museum of Art in new lighting technique, the lighting engineers are developing the theory that home lighting can be used to express moods, create an atmosphere and compliment colors and other lighting arrangements. The chief illuminating engineer of the Pacific Gas & Electric Company says in this connection: "Suppose it is a cold, dreary night outside. You turn up your cheery pink lights and get an illusion of warmth. Or if it is hot and stuffy, on go the cooling blue lights to the desired intensity. On foggy, blustery days you may like a little simulated sunshine from your yellow lights. For parties, they are all turned on at once for a gay effect."

It was something like twenty-five years ago when this magazine published a feature article by Donald Laird, who was then Professor of Psychology at Colgate University, on the psychological response to odor impressions. As we recall this article, Dr. Laird stressed that the sense of smell had the most direct path to the human brain of all senses and was the most potent of all the senses in recalling vivid memories and in providing emotional responses.

Since that early theory, color and emotional appeal through sight has so far outdistanced odor in its commercial use that it could be said the sense of smell does not even know it is in the race.

Nation's Beauty Capital Low on Cosmetic Sales

The average woman in the New York Area actually spends less on cosmetics than the average woman in most of the other cities in the United States. Women in Washington, D. C., St. Louis, Los Angeles, and San Francisco out-spend their New York sisters, whereas women in Boston and Philadelphia spend much less than those in New York.

Of major importance in affecting cosmetic sales in individual U. S. cities were age of women, income, climate, marriage rate, number of white collar workers, and size of family.

These facts were revealed in an intensive analysis of cosmetic markets throughout the United States. This analysis, based on the 16,000 family expenditure survey made by the United States Bureau of Labor Statistics in 1951, is but part of the wealth of marketing information which can be drawn from this study for more than three hundred consumer products. Sales Research Service, 170 Broadway, New York City has analyzed and brought the findings in this survey up-to-date and has made these facts applicable to sales and advertising problems.

Acres of Fragrance

"A garden of fragrance" is being designed by the Brooklyn Botanical Garden on an acre of land. This is to be a new garden designed for blind people.

Less Face Cream

New surveys continue to show a decline in the consumption of face creams.

The McClatchy Newspaper Consumer Analysis, in Sacramento, Fresno and Modesto show the following:

	1947	1954
Sacramento	78.7	73.9
Fresno	77.6	71.2
Modesto	78.2	70.9

At the same time, the Seattle Times, in their panel reported that in 1951 75 per cent of the people surveyed were using face creams and in 1954 this had declined to 72.2 per cent.

Lasting

An ancient tomb has just revealed what is probably the world's record in lasting qualities for a perfume. Just recently, a 5000-year-old tomb of one of Egypt's Pharoahs was opened. In this tomb was found a "solar boat" which was supposed to carry the soul of Egypt's Pharoah to the sun. This ancient boat, fifty centuries old, was made of a still-perfumed ceremonial sycamore wood.

Describing the first sight of the ship, Mr. el Malakah said: "I saw what appeared to be a wooden floor below me. I closed my eyes to make them accustomed to the darkness. A second impression struck me. It was perfumes of the wood, sacred wood of the ancient religion."

"A smell of incense mingled with the scent of wood. It was faint and mystic like the odor of a cathedral."

Eight-stop Shopping

The one-stop shopper, a favorite in business prophecies of just a few years ago, is getting short right and left these days.

In a recent study by the School of Retailing of New York University, on what happened to Loeser's customers after this famous old Brooklyn department store closed its doors, reports "the tendency of people to shop around, and their willingness to buy where they find what they want may prove an insurmountable obstacle for the one-stop shopping movement to overcome."

Loeser's customers have spread their purchases among eight major department and specialty stores and innumerable small shops in Brooklyn.

Only about one customer in eight demonstrated any degree of store loyalty.

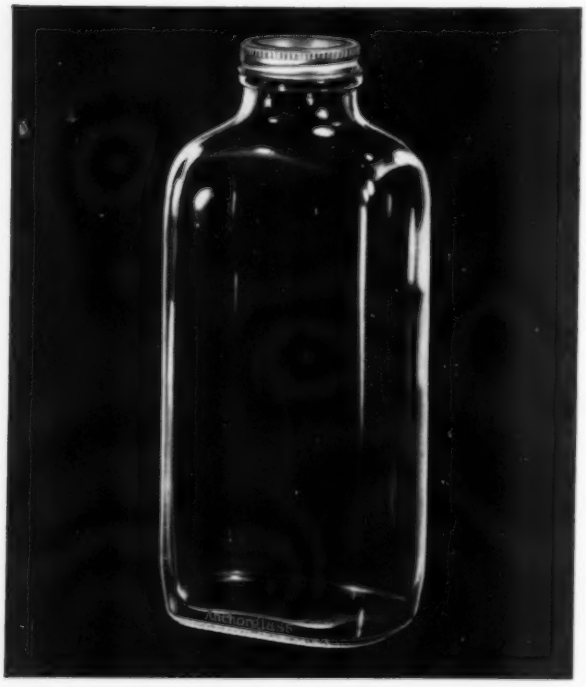
MANY Styles AND Sizes

...BUT ALL ANCHORGLASS CONTAINERS HAVE THE SAME QUALITIES

THEY are uniformly strong, tough, dependable lightweight glass containers—high in chemical durability, accurate in dimensions, capacity and finish. They are designed to withstand the knocks of modern high speed production lines, handling and transportation.

Anchorglass containers are the result of practical engineered designs, careful selection and control of raw materials, uniform distribution of glass, precise temperature control in annealing and thorough quality control through laboratory tests and regular inspections.

If you package or contemplate packaging in glass let us send you sample containers with suitable closures for your particular needs. The services of our Package Engineering and Research Laboratories are also available to help you solve glass packaging problems.



Anchorglass® Standard Blakes are available in amber glass in 26 capacities from ⅛ ounce to 32 ounces. They are ideal, economical containers for a wide variety of drugs and chemicals . . . pills, tablets, capsules, crystals and liquids, for example.

ANCHOR HOCKING

GLASS CORPORATION
LANCASTER, OHIO

★

The Most Famous Name in Glass

Package Doin's

Fritzsche Aerosol Sampler

Fritzsche Brothers, Inc., is presenting its aerosol fragrance formulations to customers in a new and strikingly designed dispenser. The white enamel coated metal container has a wrap-around label printed in black and chrome yellow, while the lettering is in white against a solid black rectangular background. This is framed in gradations of yellow spatter which lends the suggestion of a spray.

Six-Carton Bundle Wrap

John H. Breck, Inc. is now using a six-carton bundle wrap of Sylvania cellophane for shipping its four-ounce size of Beck shampoos to retailers. The attractive wrap replaces chipboard cartons, and cuts down on labor, storage and materials cost. In this way, the quality and dignity of Breck preparations is maintained right from the plant to the ultimate consumer.

The bundle wrap is used for the four-ounce size of all three Breck shampoos and for the Baby Breck Lavo.

KEEP TIGHTLY CLOSED
DAPRISAL
This desiccant is inedible and is not to be consid. ered part of the
SMITH, KLINE & FRENCH LABORATORIES

Drying Agent in SKF Package

Smith, Kline & French Laboratories' new analgesic combination, Daprisal, is being packaged in a conventional bottle along with desiccant crystals in tea-bag type sealed envelopes which produce a dry atmosphere within the bottle. The special package is supplied by the N. T. Gates Co. and is labeled to prevent the patient from mistaking the desiccant crystals for medication. (The crystals are non-toxic, but nevertheless should not be eaten, states SKF).

New Type Shipping Case

Hinde & Dauch has produced the Gerber's Interlock Box which is actually a multiple pack consisting of two or more individual boxes joined together by interlocking arms. It is designed for use with a core sealer to glue the extending arms joining the sections. When the sections are cut apart for case-breaking, the individual parts become completely sealed units.

This multiple pack is especially adapted to the shipment of cans and packaged goods which might have to be broken up into small quantities for distribution from district warehouses.

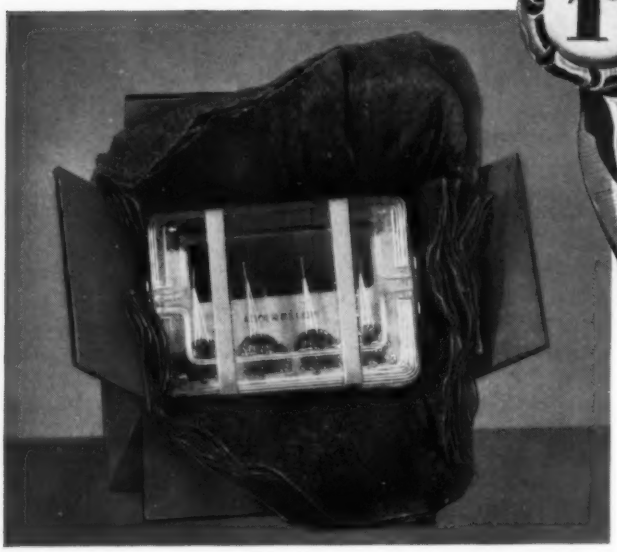
Shampoo in Pressure Can

Sweetheart Cosmetics' Sweetheart whole egg Shampoo is packed in a pressure container of the American Can Co. The contents of the six-ounce, red, white and gold lithographed container will produce more than a half-gallon of ready-made shampoo. The product is now being market tested.

Cotton Dispensing Package

Glasco Products Co., subsidiary of Owens-Illinois Glass Co., has developed a new cotton swab and cotton dispensing package, called Cotton Tails. The covered, plastic container holds a plastic cartridge of 54 individually-sealed swabs and a roll of cotton, insuring against soilage and waste. Big feature of the package: it is refillable with both swabs and cotton available at drug stores and supermarkets.

A Winner with KIMPAK*



Julius J. Puchy, Packaging Engineer
Weston Electrical Instrument Corp., Newark, N. J.

Kimpak'ed Package wins "General" 1st Prize in the National Protective Packaging and Materials Handling Contest! *Mr. Puchy tells why:*

"The winning package (above) saves us over $20,000 a year in materials and labor alone. But more important still is the fact that it actually ends costly packing, shipping and unpacking damage to our delicate navigational instrument mechanisms."

Why did Mr. Puchy select KIMPAK* in preference to all other packaging materials? Because, as a packaging engineer, he learned that KIMPAK interior packaging material provides greater protection with less weight and less bulk than any other comparable interior packaging agent. Using KIMPAK, he *knew* he could reduce the size of the container, provide maximum protection and, at the same time, cut shipping costs.

Slashed costs 68%—so easy to handle!

KIMPAK made further savings possible by simplifying the packing operation. For KIMPAK is flexible, and as easy to handle as wrapping paper. It cuts and molds easily, and can be tied or taped—so simple to use, it completely eliminates assembly of packing material. It requires far less skill than most materials, and it gives far better surface protection, too.

"KIMPAK," says Mr. Puchy, "does such a good job that our plant uses it for packaging most other sensitive electrical measuring instruments. In fact, we often use it to cushion carrier trays!"

Why not learn *all* the many advantages of KIMPAK, to solve your own packaging problems? Just write or wire Kimberly-Clark Corporation, Neenah, Wisconsin. You'll get immediate attention.

The Packaging Problems

1 During shipping and unpacking, delicate mechanisms were damaged by grit, dirt and dust contamination.

2 No standard cushioning material had been adopted for either military or commercial customers.

3 A cushioning material which would meet highest Weston rough handling specifications was required, but its cost had to be equal to or less than other packing materials.

The Winning Solution

1 Shipping and unpacking damage was ended by the application of interior packaging material, KIMPAK, Type 500, plain.

2 KIMPAK was adopted as the standard interior packaging material. It exceeded highest military and commercial protective cushioning requirements.

3 KIMPAK met all of the rigid Weston rough handling specifications. It protected sensitive instrument mechanisms more completely, yet it cost less than those materials which were used previously.

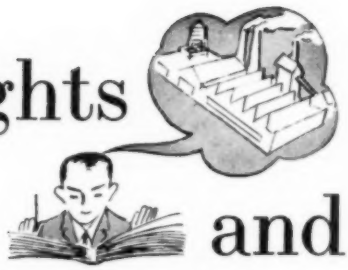
The highly sensitive instrument mechanisms, enclosed within containers by one layer of KIMPAK Type 500 (see illustration at left), were subjected to rough handling tests by the Quality Control Laboratory of Weston Electrical Instrument Corporation. After repeated 30-inch free falls on all 8 corners and 6 sides—droppings on solid steel and concrete surfaces—there was *absolutely no evidence* of any shifting of parts, contamination within the container, or damage to the mechanisms.

KIMPAK INTERIOR PACKAGING

*T. M. REG. U. S. & FOREIGN COUNTRIES

A Product of Kimberly-Clark

Patent Thoughts and Trends



*by Thomas Cifelli, Jr.**
PATENT ATTORNEY

FEWER U.S. PATENTS IN THE NEAR FUTURE

A recent order of the U. S. Commissioner of Patents means that fewer patents are going to be issued and that it is going to take a longer time on the average to obtain a U. S. patent.

This unhappy situation is the result of the Patent Office not having enough money to do the job it has been doing. As long as the order in question remains in effect the only actions that one can expect from the U. S. Patent Office are on new applications and those amended applications which are entitled to "special" action. When one considers that it is a rarity for a new application to be allowed on the first action and, further, that applications entitled to special action are in the minority, the conclusion that fewer patents will be granted is not only inevitable but rather obvious.

Of course, such a situation cannot be permitted to last very long and, indeed, in his order discontinuing the examination of non-special amended applications, the Commissioner stated that it was contemplated that the restrictions will remain in force for about six months only.

It is believed by many that the present drastic order will serve to dramatize the need for an increase in the schedule of patent fees, which increase was predicted here a few months ago. A searching investigation as to the possibility of modernizing Patent Office operations will probably be another result. The present Commissioner, who was a prominent Washington patent lawyer for many years prior to assuming his present position, can also be depended upon to see that the examining corps of the Patent Office—which does the productive work—gets the maximum share possible of available funds.

*Newark, New Jersey

Circulin—a New Antibiotic

While penicillin, the daddy of antibiotics, is still a pretty healthy individual, it is nevertheless true that the family is a rather numerous one already. A newcomer, circulin, now takes its place along with several other patented antibiotics, U. S. patent 2,676,133 thereon having been granted to P. A. Tetrault and assigned to Purdue Research Foundation.

Judging from the patent the outstanding characteristic of circulin is that it is more active against gram-negative bacteria than against gram-positive bacteria. The table below gives a comparison of the bacterial spectra of circulin (C), polymyxin (P) and streptomycin (S).

The antibiotics used for these results assayed as follows:

(C) Circulin (Preparation 8836) assaying 2700 units per milligram.

(P) Polymyxin hydrochloride, B - 71, Batch 82, assaying 1450 units per miligram.

(S) Streptomycin sulfate, assaying 675 units per milligram.

The patent goes into considerable detail as regards the method of produc-

BACTERIAL SPECTRA OF CIRCULIN, POLYMYXIN AND STREPTOMYCIN

Test Organism	Strain	Inhibited by mcg. per ml. of— C	P	S	Ratios of Inhibiting concentrations C/P	C/S
Aerobacter aerogenes	NRRL B199	3.0	0.8	12.5	4	0.25
Bacillus anthracis	K	100.0	>100.0	0.8	....	1,030
B. subtilis	K	>100.0	>100.0	12.0	....	....
Brucella bronchiseptica	NRRL B139	0.8	0.1	100.0	8	0.01
Escherichia coli	ATCC	0.8	0.8	25.0	1	0.03
E. coli	NRRL B210	6.0	6.0	25.0	1	0.2
Klebsiella pneumoniae	13-1-1	0.8	<0.4	3.0	....	0.2
K. pneumoniae	13-3-2	<0.4	<0.4	3.0	....	....
Do	FDA 602	3.0	6.0	6.0	0.5	0.5
Do	Be Parent	0.02	0.02	3.0	1	0.007
Do	Be PR	150.0	75.0	25.0	2	6.0
Micrococcus pyogenes var. *aureus*	K	100.0	>100.0	>100.0	....	....
M. pyogenes var. *albus*	K	25.0	>100.0	3.0	....	8.0
Neisseria calarrhalis	K	3.0	6.0	3.0	....	1.0
Pseudomonas aeruginosa	Parent	6.0	6.0	50.0	1	0.12
Ps. aeruginosa	PR	3.0	18.0	50.0	0.16	0.06
Do	NRRL B23	3.0	3.0	100.0	1	0.03
Do	K	<0.8	<0.8	12.5	....	....
Salmonella sp. group B	Lederle	1.6	0.4	50.0	4	0.03
S. enteritidis	149	12.6	6.0	12.0	2	1.0
Do	K	1.6	0.2	25.0	8	0.06
Do	Lederle	3.0	1.6	25.0	2	0.12
S. gallinarum	469	0.4	0.2	50.0	2	0.08
S. paratyphi	K	6.3	1.6	50.0	4	0.12
Do	Lederle	1.6	0.8	25.0	2	0.06
S. pullorum	K	0.8	0.4	50.0	2	0.02
S. paratyphi	Stamford	1.6	1.6	100.0	1	0.01
S. scholtmuelleri	Merck	6.0	0.8	50.0	8	0.12
S. typhimurium	K	1.6	<0.4	100.0	....	0.015
S. typhosa	Rawlings	0.1	<0.1	50.0	....	0.02
Do	Lederle 43	<0.4	<0.4	100.0	....	....
Do	Upjohn 63	<0.4	<0.4	100.0	....	....
Do	Army Medical School 58.	<0.4	<0.4	100.0	....	....
Do	FDA 3	3.0	<0.4	100.0	....	0.08
Shigella dysenteriae	K	<0.4	<0.4	<1.6	....	....

HOW *glass aerosol* CAN BOOST THE *sales appeal* OF *your products*

Package for spray-dispensing... and do it in glass. This combination gets results! Push-button containers invite immediate attention and examination ... give both men and women shoppers cleanliness, protection, economy. Glass, of course, has always had universal sales appeal. Personal products, especially, like perfume, cologne, sun tan oil, hair dressings, deodorants, etc., sell faster when they're spray-dispensed in glass. Glass aerosols offer high content visibility, shelf promotion of product color, and an unlimited range of inexpensive bottle shapes and sizes... for flexible pricing in highly competitive trades. Capitalize on the trend to glass aerosols now. Boost profits. Contact Continental for a free product evaluation today.

Clear hour-glass bottle.

Frosted hour-glass bottle.

Clear "simplicity" bottle.

Wheaton plastic-coated bottle.

Wheaton clear oval bottle.

CONTINENTAL "EXTRAS"

✻ **Complete Filling Service.** *We do not merchandise any products of our own. Our sole operation is contract and custom filling of containers with your products ... liquid, pressurized or aerosol ... in glass or cans.*

✻ **Extensive Laboratory and Production Facilities.** *Continental conducts chemical analysis and continuing research on dispensing methods and containers. Filling equipment is the finest in the industry, geared to handle orders of any size. Quality control and inspection safeguard your shipments.*

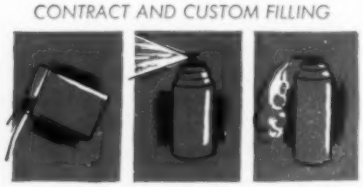
✻ **Warehousing and Drop Shipping in Bulk Lots.** *Extensive storage space lets you use our two centrally-located plants as national distribution points with consequent savings on freight. We handle shipping and paper work. Orders go through on schedule.*

MAIN OFFICE • 123 NORTH HAZEL STREET, DANVILLE, ILLINOIS

CONTINENTAL FILLING CORPORATION

PLANTS • DANVILLE, ILLINOIS — HOBART, INDIANA

CONTRACT AND CUSTOM FILLING



LIQUID SPRAY FOAM

ing the antibiotic material and its properties. For present purposes the following description of the material is deemed to be sufficient, the definition comprising claim 1 of the invention, which follows:

The substance designated circulin, which (*a*) is effective in inhibiting the growth of gram-negative bacteria; (*b*) is a basic polypeptide containing leucine, threonine, alpha, gamma-diaminobutyric acid and an optically active isomer of pelargonic acid; (*c*) contains free amino groups, as determined by the Van Slyke reaction; (*d*) forms salts with acids; (*e*) has an amino nitrogen analysis of 7.5 per cent before hydrolysis and 15.8 per cent after hydrolysis; (*f*) is substantially destroyed by crude trypsin and lipase; (*g*) forms a sulfate that is an amorphous solid soluble in water and to a lesser degree soluble in lower alcohols but insoluble in acetone and water-immiscible solvents, the sulfate salt having a melting point of 226 to 228 degrees centigrade, a specific rotation $[a]_D^{25}$ of minus 61.6 degrees (c. = 1.25 in water); and (*h*) forms a hydrochloride salt exhibiting in a mineral oil suspension a characteristic absorption in the infrared region of the spectrum at the following wave lengths in microns: 2.9, 3.1, 4.4, 5, 5.6, 6, 6.3, 6.6, 7.2, 7.3, 7.6, 8.2, 8.5, 8.7, 9.8, 10.1, 10.8, 11.3, 11.9, 12.9, 13.2, 14 and 15 as shown in Figure 1 of the accompanying drawing.

Colgate Patents

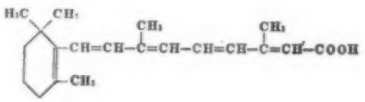
This particular item is intended primarily as a correction of the recent patents list given in last month's article. U. S. patent 2,678,902 was listed as having been issued to Colgate-Palmolive Company on Fadeproof Brilliantine. The correct number of the patent is U. S. 2,678,901.

Actually, U. S. 2,678,902 was issued to Colgate but it dealt with a hand lotion. The latter patent covers the use of sodium carboxymethylcellulose as the emulsifying aget and a colloidal magnesium aluminum silicate gel as the stabilizing agent for hand lotions.

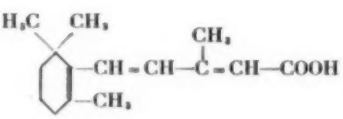
Vitamin A

It was reported last month that Eastman Kodak obtained seven patents dealing with the 4 syntheses of vitamin A. It can now be reported that Eastman is still adding to its collection of Vitamin A patents, U. S. 2,680,755 having been recently granted to it.

The newly-granted patent concerns itself with the preparation of Vitamin A-active materials and intermediates that have the *spatial configuration* which will result in maximum Vitamin A activity as measured by standard bioassay methods. Thus, since Vitamin A acid has the following structure:

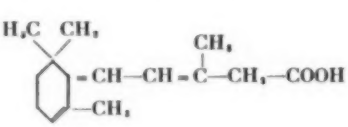


it should have the *trans* configuration with respect to the second olefinic double bond from the ring for maximum activity. Similarly, β-ionylidene acetic acid which forms a valuable intermediate in Vitamin A synthesis, should have the structure

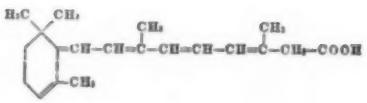


and such acid as well as the corresponding esters should also have a trans configuration with respect to the second olefinic double bond from the ring to facilitate the production of vitamin A material having a high level of biological activity.

In the synthesis of vitamin A acid and the intermediate β ionylidene acetic acid or the esters of such acids, the inherent instability of these materials often gives rise to the formation of mixtures of the desired α,β-unsaturated and completely conjugated compounds and desmotropic β,γ-unsaturated isomers of the desired polyene compounds. Thus, for example, in the manufacture of β-ionylidene acetic acid, the use of a Reformatsky reaction and dehydration of the resultant hydroxy compound results in the formation of a β,γ-unsaturated isomer of β-ionylidene acetic acid probably having the formula



in admixture with the desired α,β-unsaturated β-ionylidene acetic acid; and similarly the use of a Reformatsky reaction and dehydration in the preparation of vitamin A acid results in the formation of β,γ-unsaturated isomer of vitamin A acid probably having the formula with the following structure:



in admixture with the desired α,β-unsaturated vitamin A acid. For optimum yield, it is necessary to convert such β,γ-unsaturated isomers to the desired α,β-unsaturated form.

In the process embodying this invention, any of the well - known hydrogen halides, and preferably either hydrogen chloride or hydrogen bromide, either in anhydrous form or as an aqueous acid, is used for effecting conversion to the desired trans α,β-unsaturated polyene compound in a solution in either acetonitrile or nitromethane, and the trans α,β-unsaturated polyene compound crystallizes out of such a solution in substantially pure form at room temperature. The process is applicable for obtaining β-ionylidene acetic acid or Vitamin A acid, or any of the well-known esters of such acids including alkyl, aryl and aralkyl esters, with the alkyl esters such as methyl, ethyl, propyl or similar alkyl esters being preferred for convenience. By means of this invention, a substantial proportion of a cis α,β-unsaturated polyene compound is converted to the desired trans form concomitant with the crystallization and is progressively crystallized out, and, where a βγ-unsaturated isomer is present, it is thus converted to crystalline trans α,β-unsaturated compound. Either acetonitrile or nitromethane can be successfully employed to obtain a crystalline product at room temperature although temperatures as high as 30-40° C. can be employed and temperatures below room temperature, as for example 5° C. can, of course, be used but are usually not necessary. The process is desirably carried out in a reaction mixture wherein the acid concentration of the hydrogen halide is from 0.1 N to 1.0 N. Lower concentrations can be used but the process proceeds rather slowly, and concentrations substantially above 1 N lead to some destruction of the polyene compounds.

Thus, by means of this invention, trans α,β-unsaturated β-ionylidene acetic acid and trans α,β-unsaturated Vitamin A acid and esters of such acids are readily obtained in crystalline form, and the undesirable cis isomers and β,γ-unsaturated desmotropic isomers of such acids and esters are converted to the desired trans form in good yield and by a single reaction step.

40,000 TRADE NAMES

PERFUMES, COSMETICS AND SOAPS

SPECIAL OFFER
Both Books $5 postpaid

THE MOST COMPLETE, OFFICIAL LISTING OF ALL THE INDUSTRY TRADE NAMES

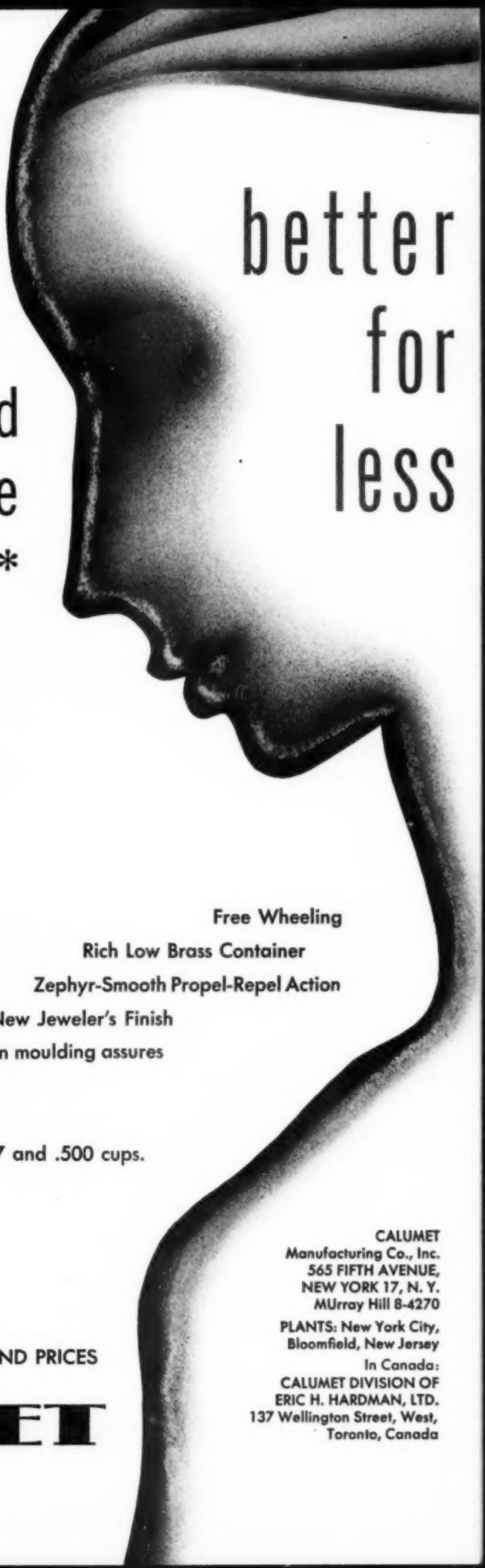
PUBLISHED IN COOPERATION WITH THE TOILET GOODS ASSOCIATION, INC

WHO OWNS THE MARK, WHAT PRODUCTS IT COVERS
WHERE YOU CAN FIND THE TRADE MARK OWNER

Comprehensive, cloth bound book **768** pages covering **34,000** names

Plus First Supplement **215** pages with **6,000** additional names.

DRUG & COSMETIC INDUSTRY 101 West 31st St., New York 1, New York



better for less

calumet's sensational new and exclusive "FRICTION-FREE"* Swivel LIPSTICK CASE

Free Wheeling

Rich Low Brass Container

Zephyr-Smooth Propel-Repel Action

New Jeweler's Finish

Center pin moulding assures texture and color control.

Made in two sizes — .477 and .500 cups.

*Pat. Pending

SEND FOR EYE-OPENING SAMPLES AND PRICES

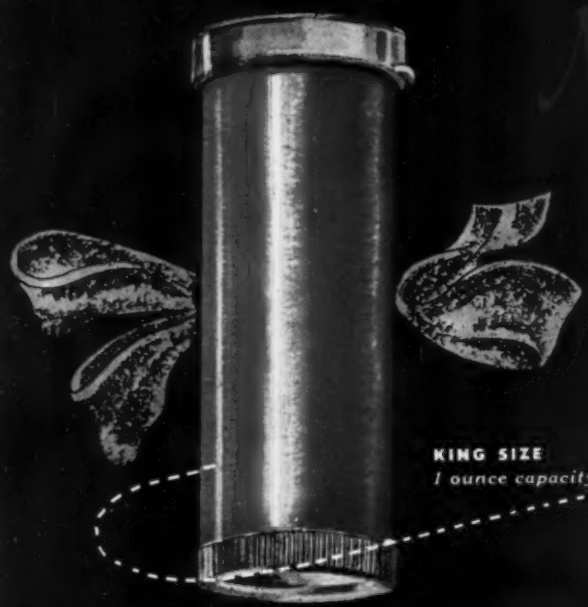
CALUMET

CALUMET
Manufacturing Co., Inc.
565 FIFTH AVENUE,
NEW YORK 17, N. Y.
MUrray Hill 8-4270

PLANTS: New York City,
Bloomfield, New Jersey

In Canada:
CALUMET DIVISION OF
ERIC H. HARDMAN, LTD.
137 Wellington Street, West,
Toronto, Canada

Glamorize Merchandise



KING SIZE
1 ounce capacity

PURSE SIZE
½ ounce capacity

Your Stick Deodorants...
Facial and Hand Creams...
Solid Cologne... Stick Perfumes...
After Shave Lotions...

CALUMET *Swivelpak*®

PROPEL-REPEL
AIRTIGHT, SHRINK-PROOF,
PLASTIC CONTAINER
in glorious colors and combinations

NO MOULDING REQUIRED . . . PRODUCT CAN BE POURED DIRECTLY INTO CONTAINER . . . ELIMINATES NECESSITY FOR COSTLY FOIL WRAPPING AND MESSY HANDLING.

CALUMET *Manufacturing Co., Inc.*

565 FIFTH AVENUE, NEW YORK 17, NEW YORK, MURRAY HILL 8-4270
PLANTS: NEW YORK CITY, BLOOMFIELD, N. J
IN CANADA: CALUMET DIVISION OF ERIC H. HARDMAN, LTD. 137 WELLINGTON ST., WEST, TORONTO, CANADA *PAT. PEND.

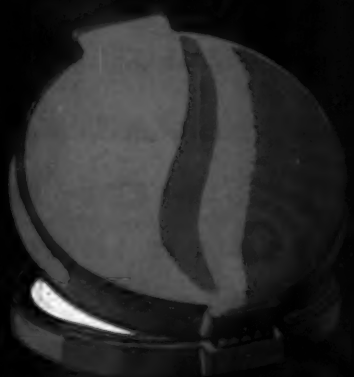
CALUMET'S NEW

PUSH-BUTTON

Plastic Compact

FOR COMPRESSED POWDER

with PUSH BUTTON CLOSURE and METAL HINGE



NO BROKEN FINGER NAILS

NO BROKEN CASES

POSITIVE, EASY

OPENING AND CLOSING

MADE IN STANDARD SIZE AND ALL COLORS.

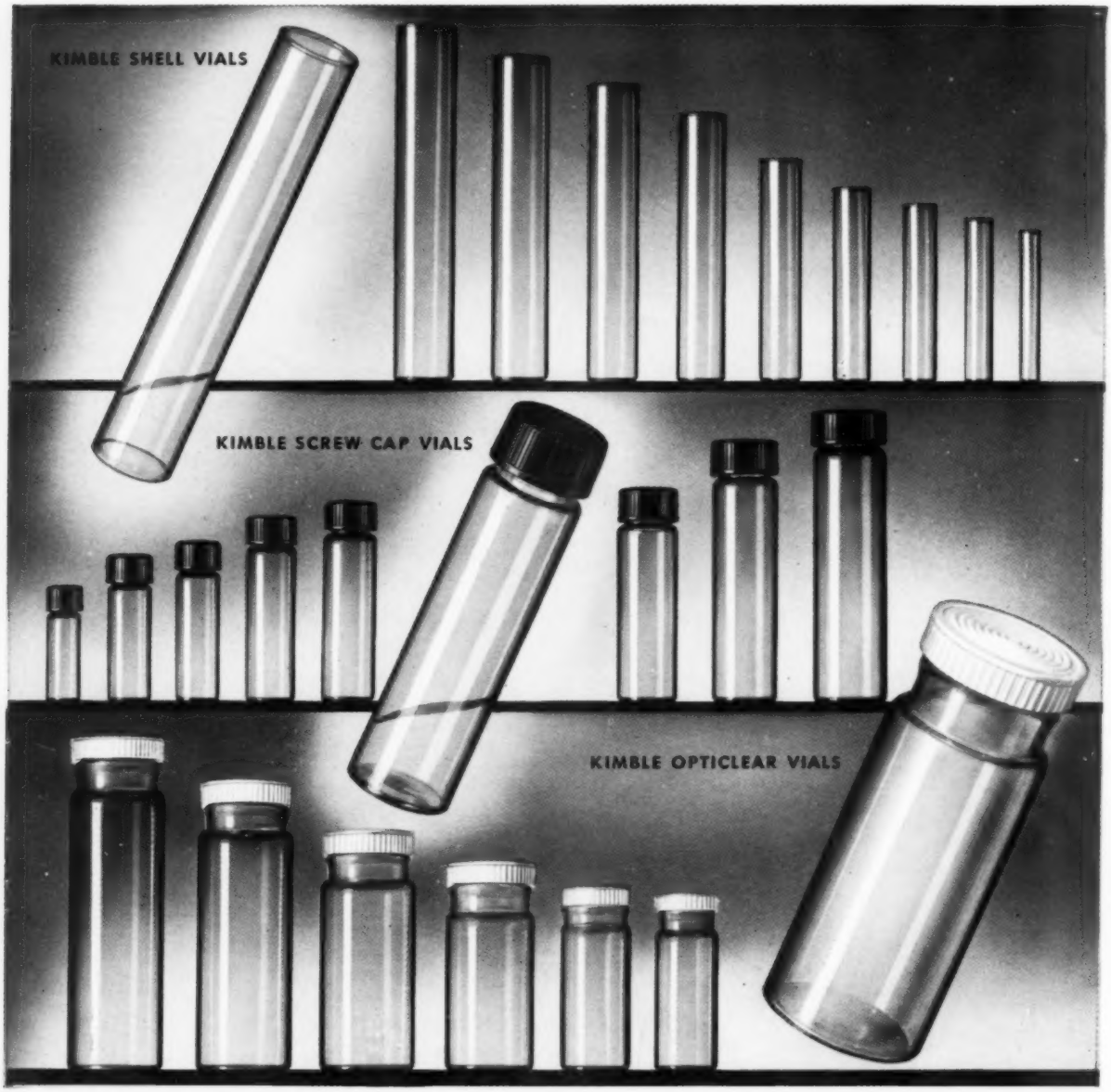
WIRE, WRITE, OR TELEPHONE FOR SAMPLES AND QUOTATIONS.

CALUMET *Manufacturing Co., Inc.*

565 FIFTH AVENUE, NEW YORK 17, NEW YORK. MURRAY HILL 8-4270

PLANTS: NEW YORK CITY, BLOOMFIELD, N. J.

IN CANADA: CALUMET DIVISION OF ERIC H. HARDMAN, LTD. 137 WELLINGTON ST., WEST TORONTO, CANADA



CHOOSE YOUR VIAL

to match the care you take with its contents

You compound your preparations with all the professional skill at your command. You use the finest pharmaceuticals. Then what?

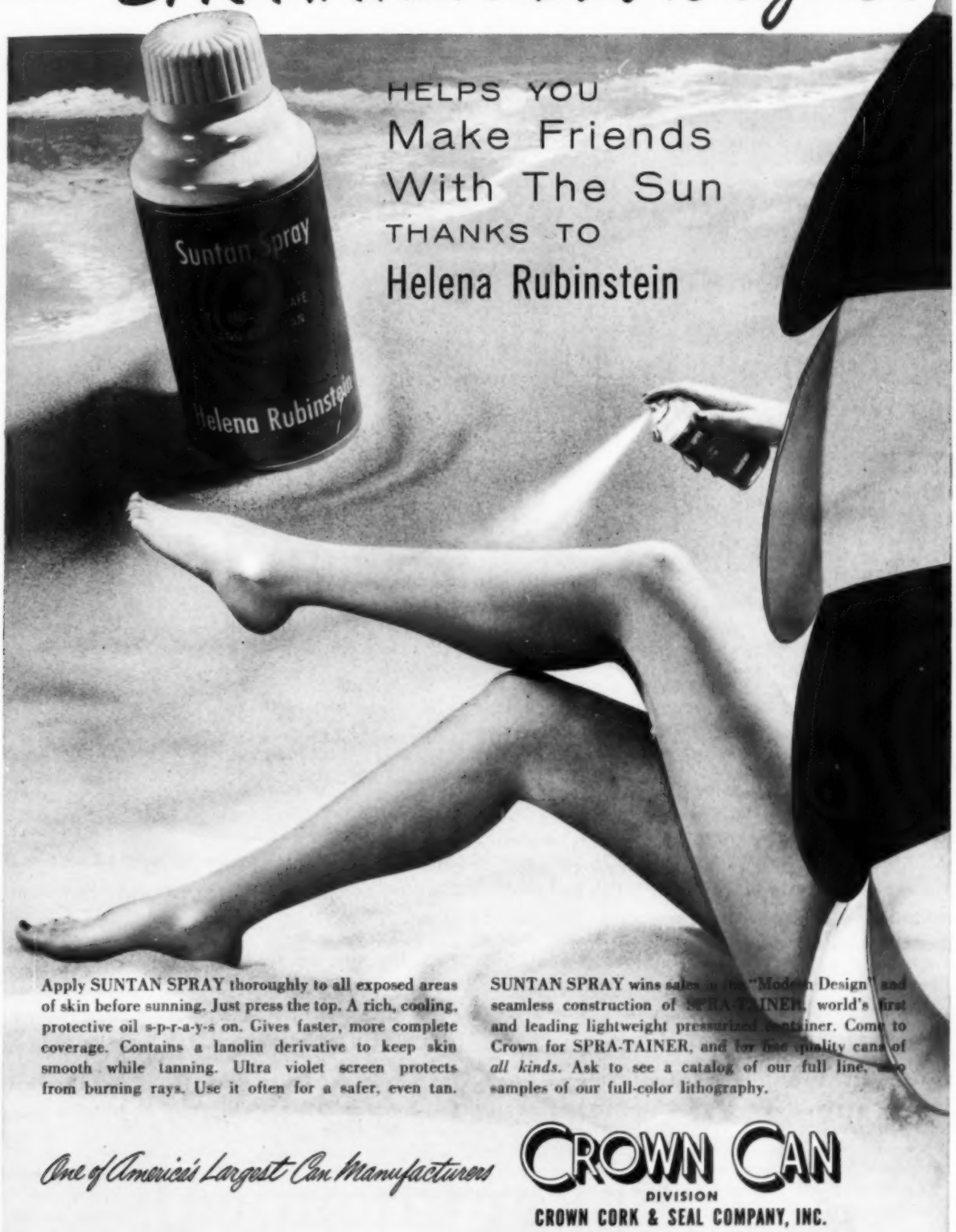
It's wise to complete the picture with a package that bespeaks quality—a package that reflects your conscientious care and competence. Kimble Vials are the answer. These trim, sparkling, lustrous containers not only have a top-quality look that builds your reputation for professional excellence, but they keep your preparations fresh, dry, and potent until used.

You'll recognize the superior quality of Kimble Vials at first glance. They improve the salability of any product while they protect its quality. Find out how they can help to sell, and protect, your product. Write Kimble Glass Company, subsidiary of Owens-Illinois, Box 1035, Toledo 1, Ohio.

KIMBLE GLASS VIALS
AN (O) PRODUCT

OWENS-ILLINOIS
GENERAL OFFICES • TOLEDO 1, OHIO

CROWN SPRA-TAINER: Does It Again!



HELPS YOU
Make Friends
With The Sun
THANKS TO
Helena Rubinstein

Apply SUNTAN SPRAY thoroughly to all exposed areas of skin before sunning. Just press the top. A rich, cooling, protective oil s-p-r-a-y-s on. Gives faster, more complete coverage. Contains a lanolin derivative to keep skin smooth while tanning. Ultra violet screen protects from burning rays. Use it often for a safer, even tan.

SUNTAN SPRAY wins sales in the "Modern Design" and seamless construction of SPRA-TAINER, world's first and leading lightweight pressurized container. Come to Crown for SPRA-TAINER, and for fine quality cans of *all kinds*. Ask to see a catalog of our full line, also samples of our full-color lithography.

One of America's Largest Can Manufacturers

CROWN CAN
DIVISION
CROWN CORK & SEAL COMPANY, INC.

PHILADELPHIA, CHICAGO, ORLANDO, BALTIMORE, NEW YORK, ST. LOUIS, BOSTON

SAVE in your processing costs with Baker SODIUM HYDROXIDE and POTASSIUM HYDROXIDE

PELLETS

The extreme purity of Baker Caustic Pellets has saved industrial users many steps in processing. They are time and money savers.

These Pellets are white, extremely pure, low in heavy metals, low in chloride, carbonate, sulfate, phosphate, nitrogen and silica content.

You also have three other advantages. They are free flowing—easy to pour—simplify your handling problems. They are easier to weigh—safer and more convenient to use.

And they now are available in tonnage quantities! Baker can supply you either Sodium Hydroxide Pellets in the Reagent and N. F. grades—or Potassium Hydroxide Pellets in the Reagent and U. S. P. grades.

For samples and prices, write: J. T. Baker Chemical Co., Executive Offices, Phillipsburg, N. J.

Baker CHEMICAL

Baker Chemicals

REAGENT • FINE • INDUSTRIAL

NEWS...

Fuller Heads Colgate Div.

George H. Fuller has been appointed head of the perfumery and essential oils division of the Colgate-Palmolive Co., according to Dr. Thomas H. Vaughn, vice-president in charge of research and development. He had formerly been plant manager of Harriet Hubbard Ayer, Inc.

In his new post, he will be responsible for the creation of new flavors and odors for Colgate-Palmolive products, both in the toilet article and the soap and detergent fields.

GEORGE H. FULLER

MacDonnell, V.P., Grove Labs.

Russell A. MacDonnell, formerly vice-president and general manager of the Sofskin Co., a Vick Chemical Co. subsidiary, has been named sales vice-president of Grove Laboratories, Inc., according to James H. Grove, president.

Panopulo Retires, Shulton

George Panopulo, controller and assistant treasurer, Shulton, Inc., has resigned after 50 years of active association in the cosmetic and toiletries industry. He has been succeeded in that post by William H. O'Brien.

He began work as an office boy at Pinaud, Inc., and within two years had become treasurer of the company. In 1925 he became general manager, a position he held for ten years until resigning to devote his time to personal interests.

William L. Schultz, founder and past president of Shulton, in 1937 induced Mr. Panopulo to join the firm, where he held the position as controller and assistant treasurer until the present time.

Major Celebrates 25th Year

Dr. Randolph T. Major, scientific vice-president of Merck & Co., last month celebrated his 25th year with the company at a dinner in his honor. Having been with Merck since June 15, 1926, he served as director of pure research and director of research and development before becoming vice-president in 1947.

Largely through his efforts, a highly effective research team, now numbering 560 technically trained personnel, has been developed in the Merck laboratories. Dr. Major has been closely associated with some of the most important medicinal and nutritional discoveries of modern times, such as vitamins, sulfa drugs, antibiotics, cortisone and hydrocortisone.

DR. RANDOLPH T. MAJOR

Speakers at the dinner included George W. Merck, chairman of the board; James J. Kerrigan, president; and Dr. A. N. Richards, chairman of the scientific committee of the board.

Emery, T.G.A. Director

Basil L. Emery, vice-president of the Chesebrough Manufacturing Co., has been elected a director of the Toilet Goods Association.

Resumes Bulk Steroid Sale

Chemical Specialties Company, New York, has resumed the sale of bulk steroid hormones and intermediate products manufactured by Syntex S.A., Mexico City. The bulk sale of these products had recently been handled by Chas. Pfizer & Co. under an agreement made last year with the Mexican firm. Under this agreement, the Chemical Sales Division of Pfizer had replaced Chemical Specialties Company which is a Syntex subsidiary. Pfizer has been selling the Syntex products in dosage forms through the Pfizer Laboratories Division.

Warren, V.P., Brockway

R. L. Warren, Jr., has been elected vice-president of the Brockway Glass Co. He will be in charge of a new division within the company organization, consisting of the quality control, traffic art and design, scheduling and specifications department.

In Fragrance Found. Post

Kay Jamesson, formerly director of the Richard Hudnut Salon, has become executive director of the Fragrance Foundation, succeeding Mrs. Miriam Gibson French, according to H. Gregory Thomas, president.

KAY JAMESSON

P-D Expanding Vaccine Output

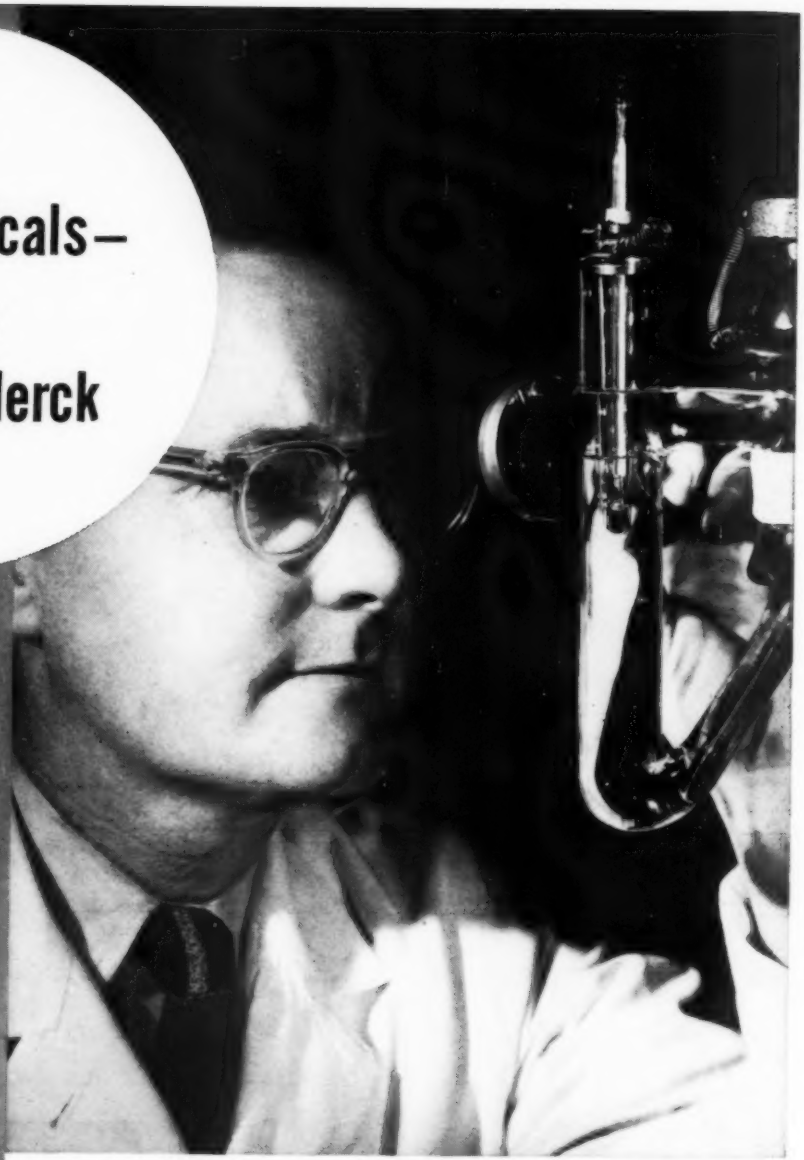
Parke, Davis & Co. has announced plans for new facilities at its 700-acre Parkedale farm in Rochester, Minn., which will materially increase the firm's output of the vaccine for use next summer. The work has just started, and the new laboratories are scheduled to be completed and in operation by October 1, 1954, according to Harry J. Loynd, president. They will supplement the existing facilities in the company's main laboratories at Detroit.

Emmerich, Chairman, MCA

Fred J. Emmerich, president of Allied Chemical & Dye Corp., has been elected chairman of the board of directors of the Manufacturing Chemists' Association, Inc. He succeeds Charles S. Munson, board chairman of Air Reduction Co., who has been elected to the newly created post of chairman of the executive committee.

William C. Foster, full-time president and a director, has been re-elected. Howard S. Bunn, a vice-president of Union Carbide & Carbon Corp., and William H. Ward, vice-president of E. I. du Pont de Nemours & Co., have been elected vice-presidents.

For Fine Chemicals– Look First to Merck



ANALGESICS
ANTIBIOTICS
BISMUTH SALTS
BROMIDES
CAFFEINE
CITRATES
EPHEDRINES
IODIDES
MAGNESIUM SALTS
QUININES
SALICYLATES
SULFONAMIDES
THEOPHYLLINES
THEOBROMINES
VITAMINS
ZINC SALTS

Looking *first* to Merck brings you multiple benefits. Merck Research provides new chemicals that create new profit opportunities for you. Merck production capacity and experience assure prompt delivery of dependable, uniformly pure products! Merck Service always is ready to help you solve tough formulating problems. In addition, Merck, as your source of supply for more than 1,000 fine chemicals, simplifies your purchasing.

Research and Production for the Nation's Health

© Merck & Co., Inc.

MERCK & CO., INC.
Manufacturing Chemists
RAHWAY, NEW JERSEY

RICHARD LOCKMAN

Gorman, Pres., McKelvy

Patrick H. Gorman, formerly assistant to the president, has become president and general manager of the Alfred D. McKelvy Co., a division of Vick Chemical Co.

Breck Lab. Dedicated

The Massachusetts College of Pharmacy of Boston formally accepted and dedicated the John H. Breck Inc. microbiology laboratory at ceremonies on June 3, in conjunction with its annual graduation exercises. The new laboratory is a gift of John H. Breck Inc. and was presented to the college by Edward J. Breck, president, on behalf of his firm.

The ceremonies were attended by college trustees, faculty members and alumni. Representing John H. Breck Inc. at the dedication were John H. Breck, Sr., chairman of the board; Edward J. Breck, president; Constance Breck, treasurer; and Arthur W. Tosh, vice-president in charge of sales. Also attending were Mrs. Edward J. Breck and Mrs. Arthur W. Tosh.

Promoted by Pfizer

Dr. I. A. Solomons has been promoted to manager of the Brooklyn laboratories of Chas. Pfizer's chemical research and development division, according to Dr. Karl J. Brunings, director of chemical research and development. Dr. Franklin S. Chance, Jr., has been made assistant director in charge of development in the same division.

Strand Cosmetics Expands

Strand Cosmetics, Inc., 1167 Atlantic Ave., Brooklyn, has expanded its facilities and now offers the services of a plant four times as large as the previous quarters. It also offers more diversified manufacturing and packaging facilities and greatly increased production potential and flexibility.

Bourjois Executive Electors

Lewis F. Bonham has been elected president, general manager and director of Bourjois, Inc. and Barbara Gould, Inc. He resigned as president of Alfred D. McKelvy Co. and as director of Prince Matchabelli, Inc., in order to assume the new positions.

Richard Lockman, formerly advertising and publicity director, has been elected vice-president in charge of advertising and sales promotion of Bourjois, Inc. and Barbara Gould, Inc. He will also continue to handle publicity.

HENRY O. DOW

Dow Named Sales Manager

Henry O. Dow has been appointed sales manager for Bourjois, Inc., and Barbara Gould, Inc. He had formerly been sales manager of the Alfred D. McKelvy Co.

Askin, Pres., Chem. Assn.

Simon Askin, president of Heyden Chemical Corp., was elected president of the Armed Forces Chemical Association, New York Chapter, at a luncheon meeting at the Hotel Belmont Plaza on June 15. He succeeds Major General William N. Porter, chairman of the board of Chemical Construction Corp.

Carlton Bates, executive vice-president of the Solvay Process division of Allied Chemical & Dye Corp. was elected first vice-president. Robert Milano, president of Millmaster Chemical Corp., was re-elected second vice-president and Walter E. Spicer, manager of the quality control department, Lambert Pharmacal Co., was re-elected secretary-treasurer.

Directors of the Association include Willard Jacobs, chairman of the board, Niagara Alkali Corp.; S. M. Cummings, president, Pylam Products Corp.; Edwin C. Kenton, vice-president, Evans Chemetics, Inc.; General Porter, Mr. Askin, Mr. Bates, Mr. Milano and Mr. Spicer.

LEWIS F. BONHAM

ADM Buys U.S.I. Resin Div.

Archer-Daniels-Midland Co. recently purchased the resin division of U.S. Industrial Chemicals division of National Distillers Products Corp. The transaction was announced jointly by Thomas L. Daniels, ADM president, and John E. Bierwirth, National Distillers president. Involved in the sale are U.S.I. resin plants at Newark, N. J., and Pensacola, Fla., along with inventories, formulations, and trade-marks owned by the resin division.

The addition of Newark and Pensacola gives ADM a total of six plants which can produce alkyd resins. The others are at Minneapolis; Edgewater, N. J.; Toronto, Canada; and Los Angeles.

Promoted by Bristol-Myers

Edward Gelsthorpe, director of specialty sales, has been appointed director of sales promotion of Bristol-Myers products division, according to Lloyd Bernegger, executive vice-president. He will be responsible for the coordination and execution of all sales promotion activities, including sales testing, packaging, display designs, and the liaison between the sales department and other departments involved in sales promotion problems on all of the Company's products.

Dingfelder on World Tour

Adolph Dingfelder, Felton Chemical Co., recently embarked on a six-month tour of Europe and the Near East in order to survey business conditions and check the world-wide Felton operation. He is making his headquarters at the office and plant of Felton in Versailles, France.

Leon Gefen, director of Felton French operations, who recently visited the home offices in Brooklyn, has returned to France and will work with Mr. Dingfelder.

COLLAPSIBLE TUBES
CAN SPOUTS
SPRINKLER TOPS
APPLICATOR PIPES
PLAIN OR DECORATED
for creams, toothpastes,
ointments, cements, oil colors,
greases, liquids, powders, etc.
ART TUBE CO., INC.
500 LYONS AVE., IRVINGTON 11, N. J.
Telephone . . . . . WAverly 3-6400
· TIN · TINCOATED · LEAD · ALUMINUM ·

Nat. Can Expansion Program

National Can Corp. held groundbreaking ceremonies on June 1, beginning the company's $5 million Port of Baltimore expansion program. The new plant facilities will include wharfage, warehousing, storage and additional manufacturing and lithography space. This will adjoin the present Baltimore plant which is located on South Wolfe St. and extends to the Patapsco River.

Donald C. Lillis, chairman of the board, National Can; Robert S. Solinsky, president; Andrew M. Toft, vice-president; and John L. Kronau, chairman of the Port of Baltimore Commission, took part in the actual groundbreaking ceremonies.

McKay Transferred by Lilly

Karl F. McKay, Lilly salesman in Huntington, West Virginia, has been transferred to the home office in Indianapolis and is now in the newly created position of wholesaler associate in the customer promotions services department.

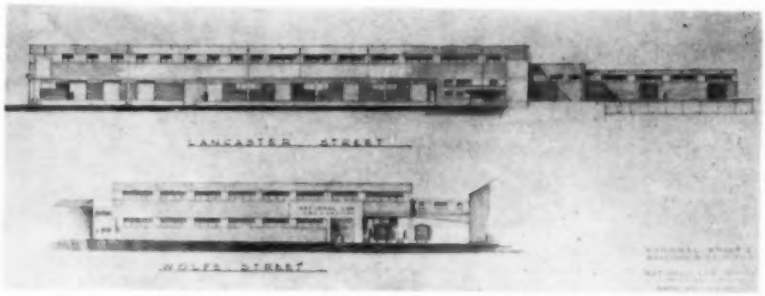
Field on Leave from Carbide

J. A. Field, assistant manager, fine chemicals department, Carbide & Carbon Chemicals Co., is now on leave from his job in New York City. Beginning with June 1, and extending over a six-month period, he will be consultant to the chemical division of the Business and Defense Services Administration, United States Department of Commerce. He is slated later to become assistant administrater.

Promoted by N. J. Zinc

James P. Sheridan has been appointed manager of pigment sales, western district, by the New Jersey Zinc Sales Co. He has been with the company 31 years, and a sales representative in the pigment field for the past 18 years.

JAMES P. SHERIDAN



Architect's drawing of National Can Corp.'s new Baltimore plant facilities which will include wharfage, warehousing, storage, manufacturing and lithography.

Prutton, V.P., Food Machinery

Dr. Carl F. Prutton, formerly with Mathieson Chemical Corp., has been appointed vice-president and technical director, chemical divisions, Food Machinery & Chemical Corp., according to Paul L. Davies, president. He will report to Ernest Hart, executive vice-president and will be located at the chemical division's administrative offices, New York.

Brown in Plax Research Post

G. S. Brown has been appointed assistant manager of research by Plax Corp. He had formerly been working on the extrusion of plastics for the Wire and Cable division of Western Electric Co.

G. S. BROWN

Dr. Ott Presides at Meeting

Dr. Emil Ott, president of the American section of the Societe de Chimie Industrielle, meeting jointly with the corresponding section of the Societe des Ingenieurs-Civils de France, presided at one of its largest meetings on May 27 at the New York salon of Coty, Inc. During this meeting, Dr. Ernest Guenther, vice-president and technical director of Fritzsche Brothers, Inc., delivered an illustrated lecture on "Essential Oil Production in Europe and North Africa."

Named Lilly Dept. Manager

Robert T. Doerr has been appointed manager of Eli Lilly & Co.'s employment department, succeeding the late Richard M. Yoho, who died May 22.

ROBERT T. DOERR

He had formerly been administrative assistant to the director of the personnel relations division.

Appointed by Continental Can

Abbot W. Sherwood, Jr., and Richard D. Cleaves have been appointed assistant district sales managers of Continental Can Company's New York sales district of the metal division, according to Ellison L. Hazard, general manager, northeastern district.

Bezard Returns from Europe

Louis Bezard, president of De Laire, Inc., recently returned from a 6-week stay in France, where he visited the De Laire factories. He discussed future plans with officers of the organization.

Attends Credit Congress

Clare I. Gincel, credit manager of Givaudan-Delawanna, Inc., and its associate companies, Givaudan Flavors Inc. and Sindar Corp., recently returned from San Francisco, where she attended the 58th Annual Credit Congress of the National Association of Credit Men.

Drawing of proposed $4.5 million lithography plant for Crown Can division of Crown Cork & Seal Co. in North Philadelphia. Structure is scheduled for completion in 1955.

Colgate Promotions

Gilbert Leigh, formerly head of the quality control division, Colgate - Palmolive Co., has become assistant director of the research and development department. John Major has been named group leader and is acting as head of the quality control division, according to Dr. Thomas H. Vaughn, vice-president in charge of research and development.

Carbide Exec. Appointments

Robert N. Graham, vice-president in charge of production, and William F. Reich, Jr., vice-president, in charge of sales, have been appointed executive vice-presidents of Carbide & Carbon Chemicals Co., according to Harry B. McClure, president.

N. C. Babcock, E. E. Fogle and H. D. Kinsey have been appointed vice-presidents of the company.

Givaudan Sunscreening Agent

Givaudan-Delawanna, Inc. has developed a new sunscreening agent, called Giv-Tan. It is effective at a level as low as 0.5 per cent, considerably lower than the usual concentrations of active material required.

Barnum in Glass Inst. Post

Bush Barnum has been named director of information of the Glass Container Manufacturers Institute, according to Victor L. Hall, general manager.

Nicholson with F. J. Stokes

Charles V. Nicholson has joined F. J. Stokes Machine Co. as export product manager, and, under A. A. Hutchings, vice-president in charge of sales, will supervise all phases of Stokes export sales activity within the company's present distribution structure.

Atlas Warehouse in Atlanta

The chemicals department of Atlas Powder Co. has established warehouse facilities in Atlanta. Stocks of the company's two polyhydric alcohols, Sorbo and Arlex, are now available in Atlanta for less-truck-load shipments. This new facility will permit faster delivery of these two products to most of Alabama, Georgia, Mississippi, Louisiana and central Tennessee.

Named V. P., Market Research

Carl A. Anderson has been appointed vice-president and production manager of Market Research Associates, Inc. He had formerly been head of market research at Merck & Co., and more recently, at National Lead Co.

Nester Heads Glass Institute

Joseph M. Nester, president of the Obear-Nester Glass Co., was elected president of the Glass Container Manufacturers Institute, Inc., at the tenth annual meeting, White Sulphur Springs, W. Va., on May 18.

New Crown Can Plant

The Crown Can division of the Crown Cork & Seal Co., Inc., recently broke ground for its new $4.5 million lithography plant in North Philadelphia. The plant contains 204,000 square feet and will employ 210 people. It is scheduled for completion in the spring of 1955.

Spencer, Elected Director

Frederick O. S. Spencer, vice-president in charge of sales, has been elected a director of George A. Breon & Co., according to Graham Erdwurm, president. He has been associated with Breon and affiliated organizations in the drug industry since 1938.

SAACI Golf Outing

The first 1954 Golf Outing of the Salesmen's Association of the American Chemical Industry, Inc., was held on June 29 at the Bonnie Briar Country Club, Larchmont, N. Y., according to Donald R. Calo, chairman of the SAACI Golf Committee. For the first time permanent trophies will be awarded for all classes. In order to win one of the trophies, however, golfers must play in at least two of the season's four outings.

Additional outings will be on July 13, Baltusrol Golf Club, Springfield, N. J.; August 10, Tamarack Country Club, Greenwich, Conn.; and September 14, Hackensack Country Club, Oradell, N. J.

Pacifico with Amer. Alcolac

Carl Pacifico, formerly with Wyandotte Chemical Corp., has been named director of market development of American Alcolac Corp., according to John Andre, executive vice-president and director of sales. He will develop new industrial markets for the many synthetic detergents manufactured by the company.

BUSH BARNUM

JOSEPH M. NESTER

CARL PACIFICO

Here's a new and distinctive perfume oil concentrate that adds high-fashion appeal to your popular-priced products. A delightful floral fragrance that's equally at home in perfumes, toilet waters, creams, powders and talcums. FLORDINE possesses all the necessary fixative properties to make it long-lasting in the finished products. Only 8.50 per pound.

FLORDINE

AROMATIC PRODUCTS, Incorporated

15 E. 30TH ST., N.Y. 16 • CHICAGO • DALLAS • MEMPHIS • PITTSBURGH • LOS ANGELES • BOSTON

Specialists in the creation of perfume odors exclusively!

MEMBER: FRAGRANCE FOUNDATION

FINE HEYDEN CHEMICALS

Industry counts on Heyden ...as a dependable source of organic chemicals

For more than 50 years Heyden has been supplying organic chemicals to almost every process industry you can mention. These products have grown steadily in number, volume and applications, and are known for their high standards of quality and dependability. We believe this is a direct result of our continuing research, exacting technical control, and advanced manufacturing methods.

Heyden organic chemicals comprise both aliphatics and aromatics, which include large volume basic raw materials for many important fields:

- **Formaldehyde** (Hexamethylenetetramine, Paraformaldehyde) for plastics, textiles, leather and chemicals
- **Pentaerythritols** (Pentek®, Mono-, Di-, Tripentek®) for paints and varnishes
- **Salicylic Acid and Salicylates** for drugs, odorants, dyes, resins
- **Chlorination and Oxidation Derivatives of Toluene** (Benzyl Chloride, Benzaldehyde, Benzoic Acid) for dyes, sanitizers, drugs and cosmetics
- **Other Organic Intermediates** for a wide variety of products

Write to us now for further information on Heyden chemicals. We shall welcome the opportunity to work with you.

HEYDEN CHEMICAL CORPORATION

342 Madison Avenue, New York 17, N.Y.

CHICAGO • CINCINNATI • DETROIT • PHILADELPHIA
PROVIDENCE • SAN FRANCISCO

JAMES L. McDOWELL, JR.

Eaton Appointments

Frank M. Ault has been named sales manager of Eaton Laboratories. He had formerly been division manager for 14 southern states, with headquarters in Atlanta.

Dr. Paul F. McLeod has been appointed medical director, succeeding Dr. L. Eugene Daily who is now Eaton's executive vice-president.

William Hayden has been appointed chief of the division of chemical engineering. He has been with the company for 17 years.

Wayne Buckhanon, Eaton sales representative in Oklahoma City since 1949, has become district manager, while John Shults, formerly manager of one of the southeast districts, has been appointed acting divisional manager of that area.

Justice with Bundy

Dr. Robert S. Justice has been appointed director of laboratories and product development for the C. M. Bundy Co., according to Walter Wargell, president. He had formerly been head of pharmaceutical research of the Wm. S. Merrell Co.

Appointed by Harmon

Orville E. Isenburg has been appointed general manager of Harmon Colors, according to J. R. Hoover, president, B. F. Goodrich Chemical Co. He will direct all operations of the company's color business which serves various industries, including printing inks and plastics. The main color pigment plant in Haledon, N. J., will be headquarters for this newly integrated operation.

When the former Harmon Color Works became a part of Goodrich in 1953, Mr. Isenburg was appointed sales manager, a post he has held until the present time.

Named to Lilly Division

The merchandising activities of Eli Lilly International Corp. have been organized and a new division, the International Merchandising Division, has been formed. James L. McDowell, Jr., has become director of the unit, and Robert B. Olson has been appointed manager of the sales promotion department.

Pharm. Advg. Club Officers

Spencer M. Fossel, director of clinical promotion, Organon Inc., has been installed as president of the Pharmaceutical Advertising Club. Other new officers include Robert H. Spencer, Schieffelin Co., vice-president; Albert Carroll, Merck & Co., treasurer; and H. W. Baldock, E. R. Squibb & Sons Inc., secretary.

Two-storey lobby in new Canadian plant of Helena Rubinstein which was officially opened on June 2. The front wall, 25 feet high, is of glass; other walls are magenta, lemon yellow, and the ceiling, for contrast, a royal blue.

Roerig Appointments

Larry J. Barrett has been appointed director of trade relations, J. B. Roerig & Co., and Louis J. Gill has become Mr. Barrett's assistant, according to Herbert P. Nack, administrative vice-president. Mr. Barrett had formerly held a similar post with the parent firm, Chas. Pfizer & Co.

Rader, Bostwick Sales Mgr.

Charles O. Rader has been appointed eastern regional sales manager of Bostwick Laboratories, Inc., according to Jack Schenberg, vice-president. He had formerly been general sales manager of the aerosol division of Bridgeport Brass Co.

ROBERT B. OLSON

Rench Appointed by Lilly

John J. Rench has been appointed assistant director of the personnel relations division of Eli Lilly & Co.

New Plant in Canada

Helena Rubinstein opened its new $750,000 plant on Queen Elizabeth Highway in Etobicoke, Canada, on June 2, marking the 25th anniversary of the company's Canadian operation. The opening ceremonies, which included conducted tours of the plant, were presided over by Roy Titus, son of Madame Helena Rubinstein; and Henri Kolin, managing director for Rubinstein's Canadian business; and Oscar Kolin and Mala Rubinstein, of the New York offices.

The plant is expected to triple production, in order to meet the growing demand for Rubinstein preparations. In addition to the 170 items in the Canadian line, the plant will also produce the Gourielli line of grooming aids for men.

Heads Sales Training Program

Harold N. Torkelson, hospital supervisor of the western division, Schering Corp., has been appointed to the company's newly created post of sales training coordinator. His headquarters will be the home office in Bloomfield, and he will be in charge of the Schering sales training program.

Atlanta Drug & Chem. Party

The Atlanta Drug & Chemical Club held its annual President's Dinner-Dance party on May 21 to honor its new president, Charles Munhall, of L. Sonneborn Sons, Inc.

The next meeting was held as a stag party on June 19 at the "Look to the Mountain" estate of George Fellows, Fritzsche Brothers.

all three with PLAXPAK® bottle

impulse appeal

Spectrum-wide choice of colors to spur sales at point-of-sale.

use appeal

Ease of squeeze dispensing to increase consumption at point-of-use.

repeat appeal

Use convenience and shelf-impact combine to foster brand loyalty.

The Plaxpak bottle "fights" for your product at the point-of-sale, re-sells it at the point-of-use and so brings customers back for more. Plax has unequalled experience in plastic bottle packaging—let us help you produce another merchandising success.

PLAX

PLAX CORPORATION

WEST HARTFORD, CONNECTICUT

PLAX CANADA, Ltd., Montreal & Toronto

Wessinger, V.P. of Institute

Dr. George D. Wessinger has been elected divisional vice-president of the Sterling-Winthrop Research Institute, according to James Hill, Jr., chairman of the board, Sterling Drug Inc. Dr. Wessinger has been assistant director of the Institute since its formation in 1946.

Nixon Appointed by Lederle

G. W. Nixon has been appointed assistant sales promotion manager of Lederle Laboratories division, American Cyanamid Co. He had formerly been manager of hospital sales.

G. W. NIXON

Abrams Receives Advg. Honor

George J. Abrams, advertising manager of Block Drug Co., has been picked as the "outstanding young advertising man of the year" by the Association of Advertising Men & Women.

With Stauffer Chem.

Alfred N. Wohlwend has joined the technical sales staff of Stauffer Chemical Co., according to T. A. Haschke, director of sales, industrial chemicals division.

Bard Named Assoc. Professor

Dr. Raymond C. Bard, head of the Microbiology section at Smith, Kline & French Laboratories, has been appointed associate professor of Microbiology at Hahnemann Medical College in Philadelphia, according to Dr. Amadeo Bondie, head of the division of Mcrobiology at the College.

Rugg Promoted by Lilly

William A. Rugg, a member of Eli Lilly & Company's production operations for eight years, has become manager of production division administration.

Ferguson Appointments

Wayne E. Gary has succeeded Carl A. Claus as manager of the eastern sales division of the J. L. Ferguson Co. and will be assisted by Roger A. Schunk, sales and installation engineer. Mr. Claus has become associated with the R. A. Jones Co.

The eastern sales division offices of J. L. Ferguson recently moved to a new address at 19 Beechwood Road, Summit, N. J.

Gaudry Appointed by Ayerst

Dr. Roger Gaudry, Laval University, has been appointed assistant director of Research, Ayerst, McKenna & Harrison Limited, Montreal, according to W. A. Leslie, president.

DR. ROGER GAUDRY

In Helene Curtis Post

Drucilla Handy has been appointed public relations and educational director of the toiletries division of Helene Curtis Industries, Inc., according to George M. Factor, vice-president and general manager.

Cos. Chemists Elections

R. H. Marriott was elected president of the Society of Cosmetic Chemists of Great Britain at the annual general meeting on May 21. Elected with him were R. T. Dobson, vice-president; P. J. Fowler, hon. treasurer; S. J. Palling, hon. secretary; and, as members of the Council, H. W. Avis, J. Bather, P. G. Gugenheim, H. W. Hibbott, W. P. Pepper, and F. Riley.

The Society's annual golf meeting was held on May 19, with the winner of the Firmenich Cup being M. F. Landon. Ralph Evans (U.S.A.) was runner-up. The afternoon foursomes was won by K. Bohemen and N. C. Chandler, with S. R. Mansfield and E. Fairbanks Smith as runners-up.

Zurhorst Named Coordinator

Charles S. Zurhorst has been appointed information coordinator of the Synthetic Organic Chemical Manufacturers Association of the U.S., according to Dr. Cary R. Wagner, president of the Association. He had formerly been director of special public relations projects for the American Petroleum Institute.

Named Sales Mgr., Brockway

Robert J. Bailey has been appointed sales manager of the pharmaceutical and proprietary division of Brockway Glass Co., according to James A. Giddings, general sales manager.

ROBERT J. BAILEY

Davies with CSC

Donald W. Davies has joined the pharmaceuticals sales department of Commercial Solvents Corp. and will make his headquarters at the company's offices in New York, according to Dr. R. C. Wood, general manager of that department.

He will assist manufacturers and formulators of human and veterinary pharmaceuticals in developing new uses for pharmaceutical chemicals produced by Commercial Solvents.

Promoted by Cont. Can

Ellison L. Hazard has become general manager of the Northeastern district of Continental Can Company's Eastern metal division, according to Reuben L. Perin, vice-president. He had formerly been manager of production engineering for the Pacific division.

Rabek on A.Ph.A. Staff

Charles C. Rabek, associate professor of Pharmacy Administration at the St. Louis College of Pharmacy and Allied Science, has become assistant to the secretary of the American Pharmaceutical Association, according to Dr. Robert P. Fischelis, secretary and general manager.

We are producing private mold miniature perfume bottles for many of the best known names in the industry. We also supply 1/2 dram miniatures in the popular stock designs illustrated below. Most of these styles are available in a wide range of larger sizes.
CARR-LOWREY GLASS CO.
Designers and manufacturers of fine glass containers
Factory and Main Office: BALTIMORE 3, MD. • New York Office: 40 W. FORTIETH ST. • Chicago Office: 1572 MERCHANDISE MART

Prindle with Lehn & Fink

Dr. Robert Franklin Prindle, recently elected director of research, Lehn & Fink Products Corp., is responsible for developing and recommending new products, and improvements in present products, for expanding sales and assuring maximum quality at minimum costs.

McGlynns in Europe

George H. McGlynn, vice-president and treasurer, Magnus, Mabee & Reynard, Inc., and Mrs. McGlynn, left for a six-week trip, on June 26, to England, Ireland, France, Belgium, Switzerland and Holland. He will visit leading producers of essential oils and a number of the company's agents.

Farley in CSC Post

James A. Farley, district manager of the Boston office, has been named field sales manager of the industrial chemicals sales department of Commercial Solvents Corp., according to F. E. Maple, general manager of the department. He will be responsible for the administration of district offices throughout the United States.

Wiseman Celebrates 40th Year

Clyde C. Wiseman, medical service representative for Pitman-Moore Co., recently observed his 40th anniversary with the company. He joined the firm in 1914 with a position in the office of the laboratory superintendent. Following the first world war, he returned to Pitman-Moore to become a medical service representative, traveling the entire northern half of Missouri for many years. He still represents the company in the Missouri territory, but his sales efforts are concentrated in a smaller area.

Promoted by Owens-Illinois

Arthur R. Kohl, manager of the household and chemical division, Owens-Illinois Glass Co., has assumed the added duties of manager of the toiletry and cosmetic division, while Robert F. Miller, manager of the prescription ware division is now also manager of the pharmaceutical and proprietary division.

Berryman Appointed by Abbott

Dr. George H. Berryman has been appointed head of clinical investigation at Abbott Laboratories, according to Dr. George R. Hazel, medical director.

Berger with Wella Corp.

Frank J. Berger, formerly chief chemist of Locks Laboratories in Mt. Vernon, N. Y., has been added to the new staff of Wella Corp. as head of the firm's recently expanded research and development program. He is an active member of the Society of Cosmetic Chemists and is this year a member of its program committee.

Wella Corp. is now operating from its new plant in Englewood, N. J.

Morson Promoted by McKesson

John M. Morson, assistant in the operations department of McKesson & Robbins, Inc., has been appointed assistant to H. C. Nolen, executive vice-president in charge of drug merchandising.

J. J. Weber, vice-president and drug sales manager, has, for personal family reasons, returned to Chicago where he formerly lived. Mr. Morson will take over many of Mr. Weber's duties, and the rest will be reassigned to members of the New York drug merchandising staff.

Hooker Appointments

Hiram B. Young, formerly works manager of the Niagara Falls, Ashtabula and Montague plants, Hooker Electrochemical Co., has been elected vice-president in charge of eastern production. Thomas E. Moffitt, formerly western manager of the company's Tacoma plant and other West Coast activities, hass been elected vice-president in charge of western operations.

F. Leonard Bryant, formerly superintendent of the Niagara plant of the company, has been named works manager.

Klee Promoted by Stauffer

Harold J. Klee, formerly manager of the Chicago sales district, has been appointed manager of the newly-organized central sales division, Stauffer Chemical Co., according to T. A. Haschke, director of sales, industrial chemicals division. He will continue to make his headquarters in Chicago.

J. H. Begley, formerly assistant manager, has been appointed manager of the Chicago sales district.

Eaton Named Director

Melvin C. Eaton, president of Norwich Pharmacal Co., was recently elected to the board of directors of the United States Committee, World Medical Association.

Paris Cosmetics Moves

Paris Cosmetics, Inc., is this month moving into their new quarters at Roosevelt Ave. and 99th St., Corona 68, Long Island.

Moody L. Crowder

Moody L. Crowder, associated for many years with the Pond's Extract Co., Clinton, Conn., died on June 12. Mr. Crowdy was treasurer of the Cosmetic Chemists Association and had been extremely active in that Association since its establishment.

The Society of Cosmetic Chemists, in connection with Mr. Crowder's death, adopted the following resolution: Whereas, Moody Crowder's sudden death is an irreparable loss which cannot be replaced; Whereas, Moody Crowder has served the Society of Cosmetic Chemists long and faithfully, as chairman of the Membership Committee and as Treasurer; Whereas, Moody Crowder has served the Society far beyond and far above the normal demands of his offices; Whereas, Moody Crowder has always been of tremendous help in the needs and problems of the Society and equally concerned with the needs of the individual; Whereas, Moody Crowder was always gracious, thoughtful and particularly considerate of the views of others; Resolved, that the Society of Cosmetic Chemists notes with extreme sorrow and deep regret the passing of this friend and officer, and be it further Resolved, that this resolution be written into the notes of the Society and a copy be sent to his family.

Andrew D. Studdiford

Andrew Douglass Studdiford, assistant vice-president and purchasing agent for the products division of Bristol-Myers Co., died June 19 at the Northern Westchester Hospital, Mount Kisco, N. Y., at the age of 53.

After six years with the New Jersey Zinc Co. he became plant manager for the Hock Paint and Chemical Co. and joined Bristol-Myers in 1929 as assistant to the production manager. He was made purchasing agent in 1935 and assistant vice-president in 1947.

Surviving are his widow, the former Marjorie Haupt, and three children, Letitia, Linton and Andrew, Jr.

Dr. Nathan Sulzberger

Dr. Nathan Sulzberger, research chemist and holder of several patents on pharmaceutical products, died June 5 in New York. He was 80 years old.

IMAGINATIVE FLORALS BY D&O

The fresh, lilting fragrance of the floral perfume has accounted for a centuries-old popularity, as alive today as it was during the fabulous reign of the Caesars. To the manufacturer of extracts and toilet waters, seeking a gay, graceful bouquet base, D&O offers with pride these fine floral favorites.

AZURELEA 115*—Fresh, lilting floral mood is captured in this combination of flowers from gardens, shrubs and fields.

CADENZA 115*—A brilliant, agile scale of floral notes. Aldehydes skillfully produce popular modern effects.

BELLO 40-R-2792*—The spicy notes of the carnation subtly modified with narcisse and jasmin tones.

STELLAR 40-R-1862*—An intensely floral fragrance in which is suggested the heavy, luxurious scent of gardenia.

****Trial quantities and specific recommendations on request.***

OUR 155th YEAR OF SERVICE

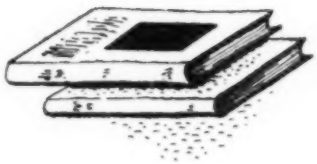
DODGE & OLCOTT, INC.

REG. U. S. PAT. OFF.

180 Varick Street • New York 14, N. Y.

SALES OFFICES IN PRINCIPAL CITIES

ESSENTIAL OILS • AROMATIC CHEMICALS • PERFUME BASES • VANILLA • FLAVOR BASES



Trade Literature

Pfizer Review

Chas. Pfizer & Co., 630 Flushing Ave., Brooklyn 6, N. Y., through its Chemical Sales Division, is publishing, "In Brief—A Review of Current Developments." Volume 1 No. 1 for May-June 1954 arrived last month. This is an 8-page booklet containing medical abstracts.

Catalog of Flavors

Fritzsche Brothers, Inc., 76 Ninth Ave., New York 11, has issued a 20-page illustrated catalog of flavors fully describing more than 30 separate flavor groups embracing a total of over 700 different flavors.

Chiris Booklet

Antoine Chiris Company, 212 East 23 St., New York 10, has issued its first catalog since the end of World War II. This is a 28-page illustrated booklet listing all the company's products with recommendations as to their uses.

Bulletin on Lanosol

Robinson, Wagner Company, 110 East 42 St., New York 17, has issued a 4-page bulletin on Lanosol, which is described as a colloidal suspension of lanolin.

Amer. Council Members

The American Council of Commercial Laboratories, 4302 East-West Highway, Washington 14, D. C., has issued a bulletin listing the laboratories that are members, and also listing the various types of services which each of them renders.

National Starch Booklet

National Starch Products, Inc., 270 Madison Ave., New York 16, has published a 36-page booklet entitled, "Opportunities for a Career with National Starch Products." This illustrated booklet is part of the company's aid-to-education program by which the company endeavors to attract more students to the chemical field.

Stapling Machine Data

International Staple & Machine Company, 801 Heein St., Herrin, Ill., has issued an 8-page booklet on operation and specifications of the company's stapling machine series. Data on the staplers, which close corrugated or fibre cartons, include illustrations and diagrams, with an explanation of the operation of the retractable anvil stapling heads used on the machines.

Plant Maintenance Guide

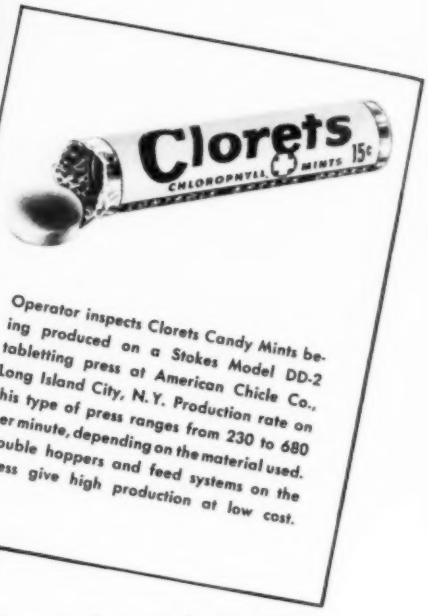
Okite Products, Inc., 157 Rector St., New York 6, has issued a 12-page booklet entitled Plant Maintenance Guide. How-to-do-it charts based on actual in-plant maintenance procedures are a feature of the booklet. Designed for quick reference, the charts recommend cleaning materials, methods of application, concentrations and temperatures for such specific operations as cleaning, and treating water in, air conconditioning and refrigeration units; cleaning compressors and condensers; cleaning floors, oil heaters and coolers, windows and light fixtures; controlling mold and odors; stripping paint from machinery and transformers; and removing rust.

Carbide Booklet on Methanol

Carbide and Carbon Chemicals Company, 30 East 42 St., New York 17, has issued a new 16-page booklet (F-8141) entitled Methanol. The booklet has been prepared for chemists, engineers, purchasing agents, and production and laboratory workers. It contains information on the uses, physical properties, shipping data, specifications, and constant-boiling mixtures of methanol.

Bulletin on Ben-A-Gel

National Lead Company, 111 Broadway, New York 6, has issued a 4-page bulletin on Ben-A-Gel, described as a "new thickening and gelling agent for water systems." The product is a highly purified magnesium monymorillonite which swells and gells in water with great efficiency. It finds use in many products including creams, lotions, powders, dentifrices, and shampoos.



Operator inspects Clorets Candy Mints being produced on a Stokes Model DD-2 tabletting press at American Chicle Co., Long Island City, N.Y. Production rate on this type of press ranges from 230 to 680 per minute, depending on the material used. Double hoppers and feed systems on the press give high production at low cost.

How Stokes Helped to Create a New Product

American Chicle Company, Long Island City, New York, one of the world's leading manufacturers of gums and candy mints, called upon Stokes Advisory Service to assist in the development of a new candy mint containing chlorophyll. Formulations were devised in cooperation with the American Chicle Co. laboratories . . . product tests conducted . . . supplies for market testing worked out with Stokes analysts . . . all of which led to a new product, Clorets Candy Mints, designed to keep breath "Kissing Sweet."

All equipment used in the manufacture of Clorets Candy Mints — for mixing, granulating, drying, and tabletting — is Stokes equipment. Every Clorets Mint turned out on the four Stokes Model DD-2 tabletting presses at American Chicle Co. meets the rigid quality control standards which this firm maintains. In addition to Clorets Candy Mints, the American Chicle Company also produces Chiclets, Dentyne, Beeman's, and Clorets Chewing Gums.

Stokes single-punch or rotary tabletting presses are adaptable to large or small production. A minimum of labor and servicing is required to operate these presses at maximum efficiency.

Send for Catalog No. 800, "Stokes Tabletting Presses", which pictures and describes tabletting processes, and for Catalog No. 600, "Stokes Pharmaceutical Equipment", which describes the complete line of Stokes pharmaceutical machinery now available.

F. J. Stokes Machine Company
Philadelphia 20, Pa.

STOKES

STOKES MAKES: High Vacuum Equipment, Vacuum Pumps and Gages/Industrial Tabletting, Powder Metal and Plastics Molding Presses/Pharmaceutical Equipment

Management Forum

by Francis Chilson
INDUSTRIAL CONSULTANT

Management Fads

I have often railed against management fads and fancies in connection with organizational and management procedures. In this country we are—thank God—enthusiasts and because we are so we often carry good ideas far beyond their useful limits. Take personnel management for instance:

Who ever heard of a personnel manager before World War I? A few very large organizations had "employment managers" whose job was merely to interview and cull-out likely looking candidates for jobs. Final selection and ultimate firing was done by the foremen or plant superintendents. As a matter of fact the right to hire and fire was one of the plant supervisor's sacred rights with which he would allow no employment clerk to tamper.

It was seen during World War I that it was a good thing to have a specialist hire people and keep their records straight. A lot of time was saved by plant supervisors so employment managers saw the opportunity and began to intrench themselves. They took over supervision of first aid; then employee health and insurance programs. By this time the employment managers had to have assistants and clerks. An increasing number of records had to be kept. More records more clerks. And the more clerks they had in their departments the more important they became. It's a common failing.

Then the employment managers began to agitate for intra-plant feeding over which, in many plants, they now have full control. Employee recreation came next, including inter-plant games and athletic leagues. Along came pension plans, withholding taxes and other payroll deductions, which demanded still more comprehensive and accurate records. And more clerks for the personnel joker. More importance for his job.

In the last couple of decades the personnel guys began to go for scientific personnel selection in a very big way. They went in for bump reading, IQ tests, thematic apperception tests, aptitude tests, temperament scales, Rorschacht diagnoses and God knows what else besides.

The field is unlimited and the end is not in sight. Already the personnel guys are burrowing into employee relationships. Pretty soon they will be investigating employee sexual habits.

Some of these practices are good and all of them are expensive. All help to build overhead. I think we have gone far overboard with all our testing. Men are not machines; they are not case histories to be identified by number and they resent too much probing into their private lives.

I had been wondering where all this would eventually lead to when I chanced to read an article in Fortune, "The Case for the Universal Card." (April 1954, p. 137 et seq.) As I read the article my blood began to boil. Here was the very thing I had long felt all this proving analyzing and recording would eventuate in. Ultimately everybody would be recorded and codified in detail. Here was raw Fascism. Here was George Orwell's vision come true and the state would really be controlled by the personnel guys.

When I was up to exploding pressure I suddenly perceived the author of the article, William H. Whyte, Jr., had written under a pseudonym a very clever *tour de force* ridiculing some of the personnel practices that have become so widespread.

In brief what the article proposed was this: Everyone would be required to carry a universal card in order to get a job. This card would be punched for mechanical classification. It would bear the owner's photograph, fingerprints, signature, address, marital status, political affiliation, religion; his physical description; his education, hobbies, military record; his Wechsler-Bellevue intelligence scale, Rorschach diagnosis, Kuder Preference Record, Extroversion rating, Thematic Apperception Test, Humm-Wadsworth Temperament Scale, Bernreuter Personality Inventory, Mass Social Intelligence Test, (his wife's too); also the Warner I.S.C. Status Scale of his parents. (There are several other recognized tests that Mr. Whyte might have included.)

In this codified world everybody would eventually

THEIR HIGH AIM IS HELPED by PNEUMATIC'S bottling efficiency

Providing curative and preventive medicines, for the better health of mankind, is the Parke, Davis purpose in life.

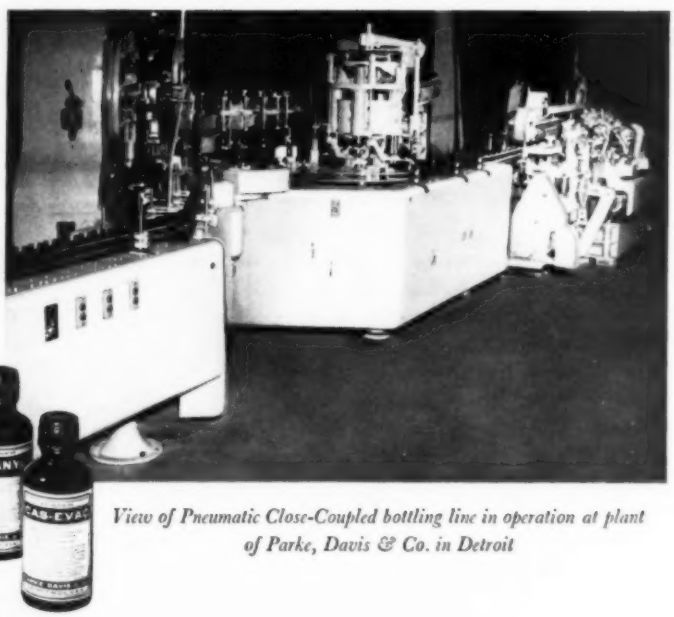
Keeping costs in line in the process of producing and packaging these health giving products calls for the highest standards of plant efficiency. That's where Pneumatic lends its helping hand.

Parke, Davis & Co. are the proud possessors of the very newest and most modern of Pneumatic machines — a close-coupled bottling line. This is virtually three machines — cleaner, filler and capper — in one. Hooked up to a Pneumatic Labeler, it provides a smooth, fast, compact arrangement for complete automatic bottling, at "lower cost per container."

It's another Pneumatic "first" — one of many that have established Pneumatic as the most versatile designer and builder of packaging equipment — for both dry and liquid products.

PNEUMATIC SCALE CORP., LTD.,
70 Newport Ave., Quincy 71, Mass.
Also: New York; Chicago; San Francisco; Los Angeles; Seattle; Leeds, England.

Canadian Division:
Delamere & Williams Company, Ltd., Toronto



View of Pneumatic Close-Coupled bottling line in operation at plant of Parke, Davis & Co. in Detroit

★PNEUMATIC

Packaging and Bottling Equipment

become card holders and non-card holders. Only those with cards of course could get jobs and the jobs would be controlled by boards of personnel men. The nonconformists, the geniuses, the individualists would be allowed to starve or become artists or beggars.

I'd almost busted an artery before I realized Bill Whyte was spoofing excessive personnel rating practices and he was ribbing his readers to. You should read the article. I think Whyte is right and damn clever in the way he presented his protest.

London Journey

By the time this issue reaches you I shall be on my way to London to work with Aspro's architects on the design of their new plant. This factory was projected in 1947 but governmental restrictions on building materials prevented its construction at that time. This seven-year interlude is a measure of the slowness of England's economic recovery. As you doubtless know Aspro Ltd. is a proprietary drug firm with several plants scattered over the world and with various ethical and veterinary divisions. It is interesting to note that in spite of socialized medicine in England, which when first instituted, was supposed to sound the knell for proprietary houses, the business of Aspro Ltd. has grown immensely. This company is not only one of the largest in England but with its several branches and divisions, it is one of the largest drug firms in the world.

One Storey Show

Believe it or not I still run into architects and even builders who insist it is cheaper to build a multi-storey building than to build a single storey. In every case, however, questioning reveals the fact that they never have built a single-storey building. They feel that since a single-storey building requires a square foot of roof for every square foot of floor space it must be more expensive to build such a building. They completely ignore several important facts: they forget that the ratio of wall space to floor space is greater in a multi-storey building; they forget that load bearing capacity in a multi-storey building can be secured only at tremendous cost, whereas a five inch reinforced concrete slab in a one-storey building with no support beneath it other than the fill or the ground will support an almost unlimited load; they forget that a one-storey building provides more net usable space because there is no loss of space due to closely spaced columns, fire towers, stairs, elevators, all of which are necessary in multiple-storey construction.

To show you what a properly designed single-storey building will do for you let me cite a case history—a very recent one since the project is still in progress. In this case it was decided on the basis of careful cost studies to abandon branch plant operation and consolidate all operations in a single, scientifically located plant.

The new plant is a single story job containing 30,000 square feet of space *less* than the two plants it replaced. In spite of this lesser amount of space, I stated to the management that the new plant would have three times the combined capacity of the two plants it was to replace, and that it would utilize less machinery and ultimately less personnel. The old plants were respectively four storey and six storey.

So the project was launched. No one anticipated that sales would burgeon to such an extent that within a year after the plant was erected we would be called upon to produce at a monthly rate almost three times the capacity of both of the old plants. But such is the fact. We were called upon to increase production so fast that we never had time to shut some of the lines down long enough to complete them.

As a result of the experience of the past five months the plant manager and I now know that the plant has a capacity of not three times the capacity of the two old plants combined but at least *four* times. Mind you that's with 30,000 square feet of space less than we had formerly. Of course everything is palletized and we have under the girders clear headroom of eighteen feet.

Inasmuch as the entire project was under my direction I am a bit proud of what was accomplished in so short a space of time. I am proud of the way everybody worked with me to accomplish our common objective. The plant is a big one, several acres in extent. Nine months after the first bulldozer lumbered on to the lot we had the first processing unit installed and the first packaging line installed and operating. The contractor's last clean up man left the site fourteen months after digging began. Sixteen months after digging began the whole plant was operating at a monthly rate three times our former capacity. And this with green crews. The plant manager and all his assistants deserve a lot of credit for the way they pulled together to get the show on the road. Some day I hope to have permission to write an illustrated article on this project. It is the first plant I have designed where there are no partitions between processing and packaging departments.

Plant Site Selection

As the product of much experience I have prepared a plant site analysis which is more detailed than any I have seen. But in spite of its detail I found recently it was not detailed enough.

I have found that in collecting plant site statistics you cannot take anybody's word; you have to check and double check. You have to be sure that the source of your information is authoritative beyond any question of doubt. Let me give you some examples of what I mean.

I built a plant recently on the outskirts of a small city. In checking the city water supply I asked the water works engineer where the city water main was

"The NEW Installations are COLTON"

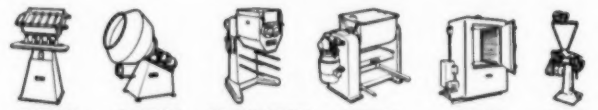
Quality has made these brands famous around the world and economical production has brought them within the reach of every household.

Today, and every day, millions of these tablets are produced on Colton No. 241 Double Rotary Tablet Presses.

Turning out more than a million and a quarter tablets every working day, the No. 241 continues to set the pace for high-speed production of well-made tablets.

If your tablet-making project calls for highest manufacturing quality plus highest production speeds, see the Colton No. 241 Double Rotary Tablet Press. Its performance has no equal.

ARTHUR COLTON COMPANY
DIVISION SNYDER TOOL & ENGINEERING COMPANY
3489 E. LAFAYETTE • DETROIT 7, MICHIGAN
PLANT NO. 2—500 BELLEVUE, DETROIT • PLANT NO. 3—MANCELONA, MICHIGAN
Sales and Service Engineers Coast-to-Coast
Export Office—13 E. 40th St., New York City
Offices in Principal Cities Throughout the World
Specialists in Pharmaceutical and Packaging Machinery for Nearly 70 Years



TABLET COUNTERS | COATING STANDS | GRANULATORS | MIXERS | OVENS | TUBE FILLERS

located. His answer was, "Right in the road that runs past your plant site." From this one would assume that the main was in the road in from of the plant site. Further investigation showed that the main was in the road all right but it terminated a thousand feet away from the lot line.

On another occasion I asked the plant manager of a large plant adjoining the plant site I had selected, whether it would be possible to use his existing sanitary sewer facilities on a gallonage basis. He said, "sure!" He was very co-operative. He even wrote his home office to confirm his authority to allow us to use his sewer facilities. He got permission. Then one day on a hunch I asked to talk directly with the plant engineer. To my dismay he told me in response to my query that for two hours each day his sewer was operating at maximum capacity because of certain effluents dumped into it and that for those two hours we couldn't dump anything into the line at all. It was my fault. I could have saved a lot of time if during my first interview with the plant manager, I had had sense enough to ask permission to talk directly with the plant engineer. The result was we had to build our own sewage disposal plant. Had we had accurate sewer information we might have selected another site where the problem would not have been encountered.

So the rule in selecting plant sites is that in collecting your data double and triple check all your information and be sure you are getting the dope from authoritative sources.

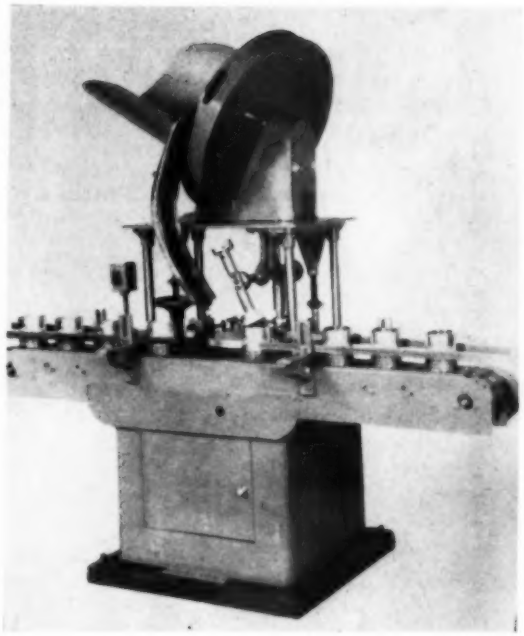
The following information is supplied by manufacturers of the equipment described and claims made below by these manufacturers are passed along for what they are worth. Presentation of such notice in this department is not to be taken as endorsement of the claims or of the equipment.

New "Tite-Cap" Lid Sealer

This machine will automatically apply Metal Seals of all types including inner Seals, Plugs and Friction Lids to both metal and fibre Cans of all shapes. Application of the Seal or Lid is performed while Can is in continuous motion, no momentary stopping or holding being required. This eliminates danger of splashing or spilling and also results in greater output.

The "TITE-CAP" LID SEALER is equipped with a specially designed Hopper that automatically feeds the Lids or Seals into a Chute. A Rotating Head equipped with "Magnetic Fingers" picks up a Seal from the bottom of the Chute and applies it to the opening in the Can as it moves into position under the Rotating Head. No supplemental operation is necessary as the application of the Seal is positive and therefore no additional device is required for effective sealing.

This Rotating Head, as well as the Magnetic Fingers are all fully adjustable, so that Seals or Lids may be applied to an opening in any position on the top of the



Can. These adjustments include compensation for variations in the cans.

As to the Chute, at the bottom it is equipped with a special Escapement Device which permits only one Seal at a time to be withdrawn, regardless of the size or weight of the individual Seals or Lids.

The "TITE-CAP" Lid Sealing Machine (pat. pend.) will apply metal Seals or Lids to Cans containing lubricating oil, olive oil, lacquer, insecticides, industrial, chemical and food products, especially where a Tamper-Proof Seal is required. Friction Lids can also be applied to Fibre Cans of all sizes.

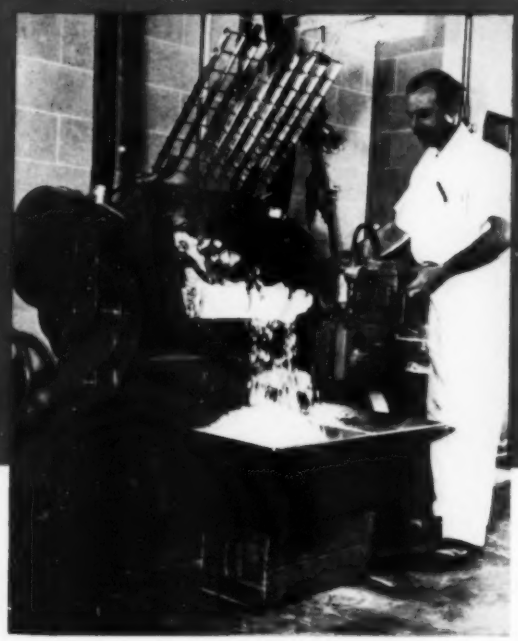
In those special cases where the seals are rolled in under the neck of the Spout, as on Olive Oil Cans, a special Spinning Head can be furnished thus providing a compact, double purpose unit on one case. Manufacturer: TITE-CAP MACHINE CO., INC., 57 Rose St., New York City 38, N. Y.

Hapman Tubular Conveyor

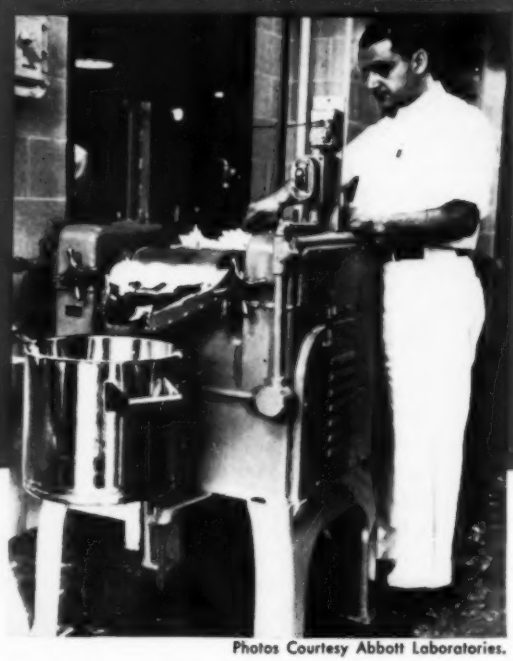
A Hapman Tubular Conveyor is being used at the Upjohn Company plant, Kalamazoo, Michigan, to elevate and convey five different materials from a single floor hopper (the proper number of bags of each material are manually emptied into this hopper), and discharged them into a mixer, and the same conveyor is then utilized to elevate the blended materials and distribute them to any one of four tanks, the blend being reintroduced into the conveyor from the discharge of the mixer.

Formerly, bags of the five ingredients (Osmo, Kaolin, Bentonite, Pectin, and Georgia Clay) were manually loaded onto small trucks, transported to the second floor on an elevator and manually dumped into the mixer. After the material was properly blended in the

DAY EQUIPMENT SELECTED FOR PILOT PLANT, WHERE PRECISION IS VITAL!



Efficient method for wet granulation is demonstrated in this picture of a Day Stainless Steel Kneading and Mixing Machine, used for combination powder and binder to manufacture medicinal tablets.



Photos Courtesy Abbott Laboratories.

Used here for smoothing ointments, the Day 5 X 12 Lab Three Roll Mill demonstrates its excellent application for laboratory and experimental operations of all kinds.

Pilot operations set the pattern for full-scale production. That's why heavy emphasis is placed on efficiency and precision. Abbott Laboratories demonstrates the excellence of Day equipment by choosing the two machines illustrated here for use in its pilot plant.

DAY Kneading and Mixing Machines,

No. 18 and No. 24, with capacities of 15 and 30 gallons, are ideal for experimental production. They can be equipped with DAY double-arm-sigma or fishtail agitators, depending on the material to be processed. They feature a dependable gear drive and power dump. Tanks are furnished in plain or stainless steel and may be steam-jacketed if desired.

DAY Midget Three Roll Mills

offer all the advantages and design features of larger Day models in a size adaptable for pilot operations. An extra heavy frame houses the gearing and motor, minimizing space requirements. Silent chain drive eliminates friction loss ordinarily encountered with shafting and belting. The 5" by 12" mill, as illustrated, is equipped with chamber bored rolls for water cooling or steam heating, whichever is desired.

DAY

THE J. H. DAY COMPANY • CINCINNATI 22, OHIO
INCORPORATED

mixer it was then discharged by gravity to the tanks on the floor below. This procedure involved considerable manual lifting, and created undesirable dusty working conditions. The dusty situation created, made extensive clean ups necessary.

The existing system is now on a single floor and utilization of the Hapman Tubular Conveyor has eliminated previous lifting necessary, as well as the dust problem, inasmuch as the conveyor is a totally enclosed unit with gasketed joints for dust tight operation. The elimination of manual lifting and control of the dust problem has improved working conditions as well as production and morale. This new system has allowed the company to produce 40 per cent more of the product, and the only maintenance necessary on the conveyor during more than a year of continuous operation has been lubrication of the motors.

The present system consists of the floor hopper, the Hapman Tubular Conveyor, the mixer, and the four tanks. The conveyor consists of 75 feet of Hapman Series No. 46 all round Neoprene flighted patented sealed-pin chain operating in four inch standard pipe with a chain speed of 30 ft. per minute, and includes two receiving hoppers, one roller turn box, three discharge hoppers complete with Hapman patented noiseless vibrators and one combination drive and take-up unit.

Roller Lubricator

Cherry-Burrell is now producing a new lubricant dispenser for use on chain type bottle conveyors. Proper lubrication will reduce wear, give smoother conveyor operation and reduce bottle breakage. Lubrication also keeps the bottle conveyor clean and sanitary.

The new lubricator, field tested for four years, was found to overcome many objections to drip type dispensers. It provides positive lubricating action, but because it operates only when the conveyor is in motion, there is no waste, excessive sudsing or dripping on the floor.

Unit is designed for mounting under the return conveyor chain. Chain is lubricated as it passes over the "O" equipped roll, which is immersed in the lubricant pan. Lubricator for a single (4½" wide) track will hold from one to five rings; unit for double (8 5/8" wide) tracks will hold twice as many. The rate of application is varied by simply adding or removing "O" rings.

Lubricant, whether liquid or semi-solid, can be added while conveyor is operating. One fill is usually sufficient for a day's operation. Maintenance is negligible as there is no spigot to become clogged and the lubricator is sturdily built.

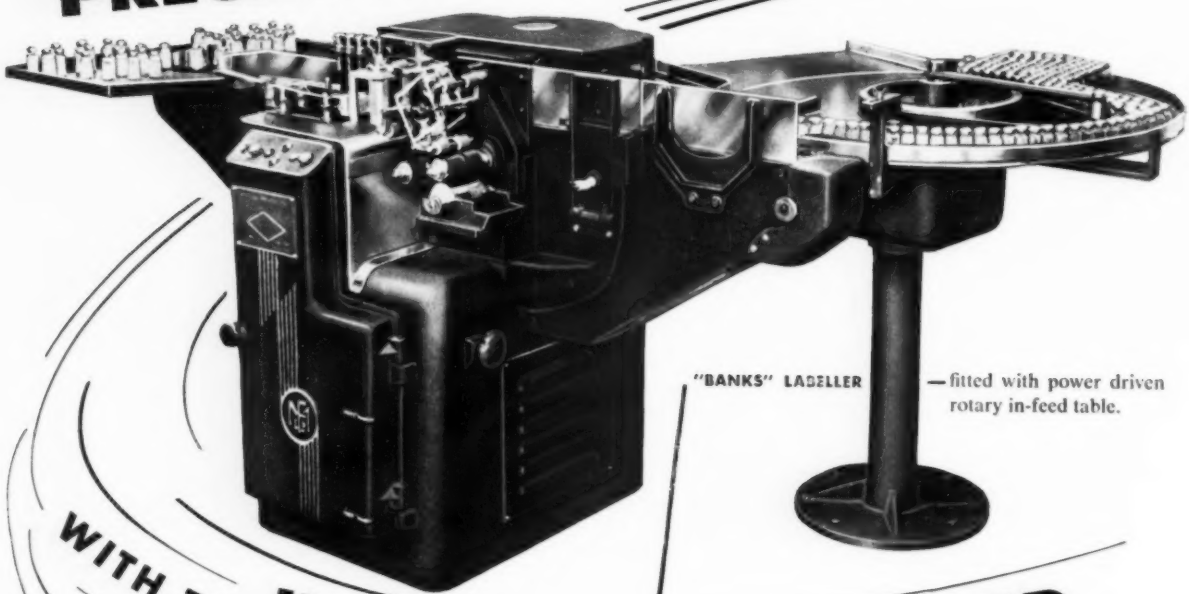
For further information about this roller lubricator, write to Cherry-Burrell Corp., Dept. AS-20, 427 W. Randolph St., Chicago 6, Ill.

Redesign Job

Packer Machinery Corporation, 30 Irving Place, New York, 3, N. Y., manufacturers of liquid filling equipment, announces that due to a response to invitations for suggestions and comments by users in the field, it has redesigned its Model A, Small Packager, filling machine.

It was found that Small Packagers preferred a drill press type handle, but unlike a drill press, one that locks into position during the filling cycle; and such a handle was installed on the machine. Another feature is the installation of the motor, pump, filter, and etc, out of sight within the body of the machine; the new model is now equipped with Standard, interchangeable, Stainless Steel spout assemblies, such as is found on the larger Packer fillers. It is claimed by the manufacturer that the new filler is more compact, and has an ease of operation that makes for more efficient filling. The Model A now comes in a Vacuum model, equipped with three to six spouts; and a Gravity Type model, equipped with three spouts, both with Clear Plastic Tubing, and

HIGH SPEED PRECISION LABELLING at low cost



"BANKS" LABELLER — fitted with power driven rotary in-feed table.

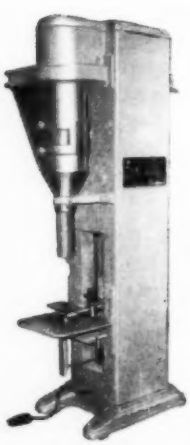
WITH THE "BANKS" LABELLER

Vials, jars and bottles are precision labelled on a "Banks" at the rate of 2,400 to 10,200 per hour. This cost and time-saving volume output is accomplished with accurate label registration—whether front and back, all-round, or spot labelling.

Furthermore, the "Banks" uses no wipers or rollers; labels are protected against smearing, soiling or staining, and there is never any excess glue extending beyond label edge.

Other advantages include an electrical "No Bottle —No Label" device, Variable Speed Range adjustable while machine is running, and convenient accessibility to all parts for easy cleaning.

There is a "Banks" Labeller to fit your individual labelling operation. Write and tell us your requirements, or request illustrated "Banks" Catalog.



UNIVERSAL FILLER. The Universal Filler fills powders, granules, pastes and creams into jars, boxes, envelopes and cans by gross-weight, packing, or volumetric measurement.

STOKES & SMITH CO.

4912 SUMMERDALE AVENUE, PHILADELPHIA 24, PA.

Pacific Coast: SIMPLEX PACKAGING MACHINERY, INC., 534 - 23rd AVE., OAKLAND 6, CALIF.

fmc

SUBSIDIARY OF FOOD MACHINERY AND CHEMICAL CORPORATION

TRADE MARK

6-SS

fully adjustable for the handling of containers, from ounces to quarts.

Industrial X-Ray Unit

A new Norelco MG 60 fluoroscopy and radiography unit for industrial inspection, production control and scientific purposes that is self-contained, light-weight and easily portable, has been announced by the Research & Control Instruments Division, North American Philips Company, Inc., 750 South Fulton Avenue, Mount Vernon, New York.

Extremely useful for X-ray examination of objects made from light metal, rubber, plastics, porcelain and glass, the new unit detects metallic foreign matter and locates contact parts and connetors in insulating materials, helps in the control of fabric layers in rubber, and reveals metallic contents of luggage, parcels in customs and police offices. It is of outstanding use in the packaged food industry.

The MG 60 is designed for continuous operation and is ideal for mass production applications. The X-ray tube has a small focal spot (lmm) and this provides excellent radiographic and fluoroscopic results. Sturdy construction and mounting of the transformer and tube in a housing of minimum size make the unit easy to manipulate and highly reliable.

Essentially, the MG 60 consists of three components: the X-ray source, the control unit and the fluoroscopy box. The X-ray unit houses the tube and the high voltage and filament transformers in a small oil-filled tank. A built-in noiseless air circulator cools the X-ray unit and a large handle facilitates positioning for any required orientation of the beam. The X-ray unit is connected to the control box by means of a flexible multi-conductor cable and plug.

The control box has a panel on which are the required controls, switches, signal lamps and a milliameter for tube current. Operation is extremely simple. High voltage is controlled by means of a switch in steps of five Kvp between 30 and 60 Kvp. Power may be turned on or off by a built-in lever switch or a remote control switch. The tube current control permits easy setting to the desired four ma maximum value.

The fluoroscopy box facilitates examination of small objects. The parts are arranged directly behind the fluorescent screen in the front panel and may be held stationary or moved as required. In order to attain a smooth sequence when performing serial inspections, suitable guide rails or a conveyor belt must be used. A viewing cone can be mounted in front of the fluorescent screen to facilitate inspection of the image in brightly lighted rooms.

Radiographs can be taken directly on the object or in the fluoroscopic box which has a removable cassette frame. The MG 60 complies with standard safety regulations covering radiation protection. When the unit is used with a conveyor belt for continuous inspection, suitable protective devices must be installed to prevent scattered radiation from passing through entrance and exit openings.

The MG 60 takes power from a standard 110 or 220 volt, A.C. Supply. Current consumption is approxi-

mately two amperes and permissible continuous output is four ma at 60 Kvp.

The X-ray unit is 17″ x 8 5/8 x 8 5/8″ and weighs 46 lbs. Control unit is 8¼″ x 6 5/8″ x 5½″ and weighs 14 lbs. Fluoroscopic box is 16″ x 22″ x 23¼″ and weighs 50 lbs.

New Stokeswrap

Especially designed for the accurate automatic packaging of items not suitable for volumetric filling, a new, improved STOKESWRAP packaging machine has been introduced by Stokes and Smith Company of Philadelphia.

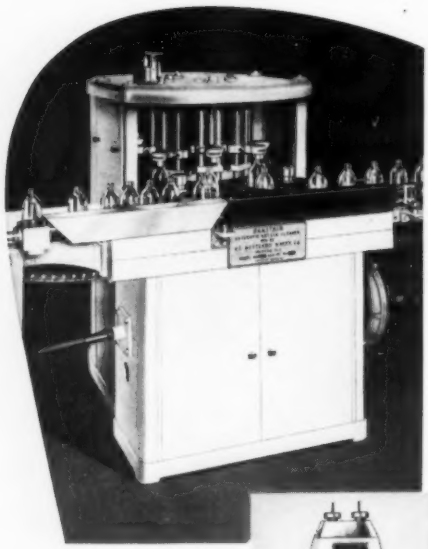
Feature of the new unit is the addition of a battery of net weight scales especially manufactured for this machine by the Woodman Company, Inc. Use of multiple scales permits the STOKESWRAP to maintain filling speeds up to 60 packages per minute. Accuracy of fill is assured by means of bulk and dribble feed. The major portion of the product is first fed into the weighing bucket and precise weight is then reached by dribble feed.

Intended to answer the problems inherent in the filling of many free-flowing and mixed materials, the new STOKESWRAP is particularly suited for the packaging of such items as mixed nuts, odd shaped candies, crackers and cookies. The net weight scales are built to fit any new or existing standard Model BS STOKESWRAP.

The S & S STOKESWRAP Packaging Machine forms, fills and heat seals packages from any approved heat sealing film, paper or foil. Package limits range from 13/16″ wide by 1″ long to 5 1/16″ wide by 12½″ long. Complete information and specifications for the new STOKESWRAP are available from Stokes and Smith Company, 4992 Summerdale Avenue, Philadelphia 24, Pennsylvania.

12116 0

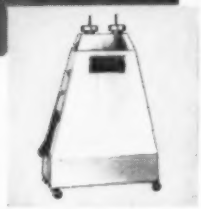
LOYOLA UNIVERSITY
LIBRARY
NEW ORLEANS, LA.



SANITAIR AUTOMATIC AIR CLEANER

● Most efficient high speed cleaning action. Most positive evacuation of all foreign matter. Handles entire container range with quick changeover. Handles also sprinkler top and aerosol valve finishes. New model for wide-mouth containers.

The Sanitair is completely automatic and can synchronize with automatic filler. It is a rotary machine of extremely sturdy long-life construction yet operates with amazingly smooth, vibrationless action. Does double-cleaning time at all speeds with economical use of compressed air. For complete details, write for the Sanitair Bulletin.



Semi-Automatic Air Cleaner

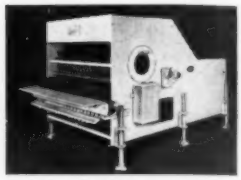
The EZ Air Cleaner is ideal on short runs or as stand-by equipment on peak loads. Can be furnished to connect to users air supply. Inverted cleaning action efficiently removes all foreign matter from new containers of any size or type. Aircleans 2 containers at a time with a capacity from 20 to 40 containers per minute. Write for EZ Bulletin.

U. S. BOTTLERS MACHINERY COMPANY

4013 North Rockwell Street *Chicago 18, Illinois*

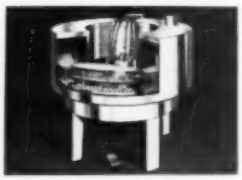
BOSTON • NEW YORK • PHILADELPHIA • HOUSTON • DALLAS • DENVER • SAN FRANCISCO
LOS ANGELES • SEATTLE • PORTLAND • PHOENIX • NEW ORLEANS • TAMPA • ATLANTA
MONTREAL • TORONTO • VANCOUVER • WINNIPEG • EXPORT OFFICE: TOLEDO, OHIO

WASHING EQUIPMENT

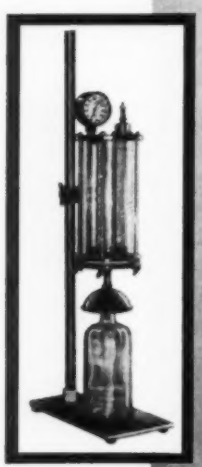


U. S. Load-A-Matic automatically unscrambles and rinses containers at high speed. Handles up to 12 oz. containers, catsup bottles, etc. Write for Load-A-Matic Bulletin.

U. S. Rotary Rinser does both inside and outside of any shape bottle or jar. Water, steam or air. Write for Rinser Bulletin.



U. S. Ampoule Rinser is built entirely of stainless steel. Teflon valve seats never require lubrication. Write for full details.



Especially designed for the handling of small volumes of liquid. Stainless Steel and Pyrex construction.

2800 cc

LABORATORY FILTER

Cloth, paper, asbestos pads or any other filter media may be used. Has special outlet assembly for sterile bottling for bacteriological work.

Also available in smaller sizes.

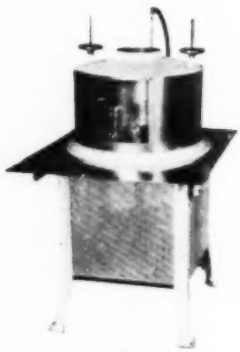
Write for catalog, a helpful answer to filtration problems.

HORM PRESSURE & VACUUM LABORATORY FILTERS

F. R. HORMANN & CO., INC., 17 Stone Street, Newark 4, N. J.

NOW! Lower Costs—Increased Efficiency Production Washing of VIALS — BOTTLES — AMPULS

This machine was especially built for concerns whose production requirements necessitate flexible equipment for washing a wide range of vials and bottles, both large and small. It has a production of up to 1200 containers per hour and requires no accessory parts for handling the different containers.



AMPWASH MODEL RW-8

Est. 1922 **POPPER & SONS, INC.**

300 FOURTH AVENUE
NEW YORK 10, N. Y.

PerfeKtum

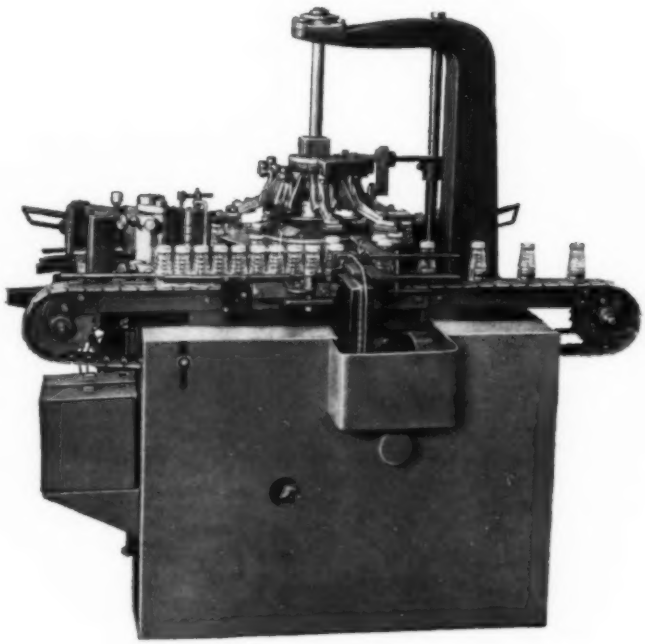
Write for new catalog #454 describing entire line of PerfeKtum equipment, including new rubber stoppering and aluminum crimping machines.

NO OTHER FULLY AUTOMATIC LABELER CAN

You'll find them only in

the PONY EXPRESS®

GIVE YOU ALL THESE Extra ADVANTAGES



1. Handles oval, square, round and tapered shapes.
2. Applies glue from edge to edge for elimination of blisters.
3. Uses vacuum principle of label handling to assure perfect register and minimum glue attention.
4. Effective circulating glue system, - with micro glue control to prevent glue smears on containers.
5. Requires NO OPERATOR.
6. Petty-Cash Change-parts.
7. Clamps containers into position **prior** to moving container toward labeling station, to avoid faulty label register.
8. Change-over almost as quickly and simply as the Pony Labelrite.
9. No label-feeding unless incoming containers signal their approach.
10. Self-cleaning glue system,

The PONY EXPRESS is a logical development incorporating all the precision features which have made an unprecedented reputation for the Pony Labelrite. Being fully automatic, the FULL rated capacity (70 per minute) is available for sustained production.

Here, for the first time, is an automatic which is **not** "single-purpose", or restricted to a greatly limited range of work,—usually the case with ordinary automatic machinery.

539 ***Send in sample containers with labels for accurate details!***

NEW JERSEY MACHINE Corporation

AUTOMATIC LABELING • PACKAGING — PAPER BOX MACHINERY • MAKERS OF THE PONY LABELRITE

FACTORY SALES AND SERVICE BRANCHES
CHICAGO, CINCINNATI, LOS ANGELES

MAIN OFFICE & FACTORY: 1550 WILLOW AVENUE, HOBOKEN, N. J.

ANTIBIOTICS

We offer

NEOMYCIN SULFATE

CRYSTALLINE PENICILLIN G POTASSIUM U.S.P.
CRYSTALLINE PENICILLIN G SODIUM U.S.P.
CRYSTALLINE PROCAINE PENICILLIN G

STREPTOMYCIN SULFATE U.S.P.
CRYSTALLINE DIHYDROSTREPTOMYCIN SULFATE U.S.P.

in bulk, and in a wide selection of vials of single products and combinations.

Our customers tell us the quality of our antibiotics is superior.

ANTIBIOTICS

Neomycin
Penicillin
Streptomycin
Dihydrostreptomycin

VITAMINS

B_1—Thiamine HCl U.S.P.
B_{12} Crystalline U.S.P.
(Cyanocobalamin)
0.1% Trituration with Calcium Phosphate Dibasic
0.1% Trituration with Mannitol
B_{12} Solids for Oral Preparations
Calcium Pantothenate (Dextro)
Choline Bitartrate
Choline Chloride
Choline Dihydrogen Citrate
Tricholine Citrate
†Folic Acid U.S.P.
Nicotinamide U.S.P.
Nicotinamide HCl
Nicotinic Acid U.S.P.
Pyridoxine HCl
Riboflavin U.S.P.

†First synthesized by Cyanamid . . . highest quality available.

SULFONAMIDES

Sulfadiazine U.S.P.**
. . . Sulfa Drug of Choice
Sulfamerazine U.S.P.**
Sulfanilamide U.S.P.
Sulfathiazole U.S.P.**
Sulfapyridine N.F.**
Sulfabenzamide**
Sulfaguanidine U.S.P.
Sulfamethazine (for human use)
Sulfacetamide**
Phthalylsulfacetamide

OTHER PRODUCTS

Aminoacetic Acid N.F.
Bishydroxycoumarin U.S.P.
Cinchophen N.F.**
Neocinchophen U.S.P.
Heparin Sodium U.S.P.
Methylene Blue N.F.
N-acetyl-p-aminophenol
Para-Aminosalicylic Acid***
Propylthiouracil U.S.P.
Metallic Stearates—AERO* brand
Certified Colors for Pharmaceutical Use

VETERINARY PRODUCTS

2-Amino-5-Nitrothiazole
Phenothiazine N.F. (regular and drench grades for veterinary use) (also sulfas above)

*Trade-Mark
**and sodium salt
***with sodium or calcium salt

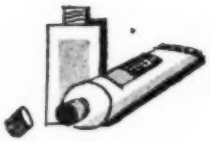
In keeping with long-established policy, the above products are offered to ethical Pharmaceutical and Veterinary Manufacturers only.

American Cyanamid Company

FINE CHEMICALS DIVISION
30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

CHICAGO: 3505 NORTH KIMBALL AVE. (18)
PHILADELPHIA: 401 NORTH BROAD ST. (8)
DETROIT: 931 FISHER BUILDING (2)
LOS ANGELES: 2300 S. EASTERN AVE. (22)
ST. LOUIS: 5025 PATTISON AVE. (10)

DISTRIBUTED IN CANADA BY NORTH AMERICAN CYANAMID, LIMITED · MONTREAL: P. O. BOX 6120, MONTREAL, P. Q. (5550 ROYALMOUNT AVENUE, TOWN OF MOUNT ROYAL) · TORONTO: ROYAL BANK BUILDING.



Advancing Therapy

Starch Sponge as a Hemostatic

The value of starch sponge as a hemostatic in oral surgery is indicated by W. R. Smith (*U. S. Armed Forces Med. J.* 5:479, 1954). He points out that the methods used to handle unusual bleeding secondary to tooth extraction and other oral surgical intervention have generally consisted of pressure, either alone or in combination with various drugs, such as: ferric subsulfate solution (Monsel's), tannic acid, phenosulfonic acid, epinephrine solution, or ferric chloride. An important disadvantage of this was the occasional recurrence of bleeding when the gauze pack was removed and treatment had to be reinitiated. When absorbable materials were developed the advantage of their absorbability was easily appreciated. The earlier substances, notably fibrin foam, gelatin sponge, and oxidized cellulose, have been used alone and as carriers for thrombin solutions, and for antibiotics as well. These materials have been left in alveolar bone or in other portions of the body and in most cases have been absorbed, apparently without harm. Opinion varies, however, as to the comparative merits of these three substances.

Starch sponge is an absorbable hemostatic agent, which is apparently well tolerated by the body, including alveolar bone. The low cost of its manufacture may be of importance in consideration for its further development. Saliva did not hinder its hemostatic action nor did the reaction between starch and saliva produce enough acid to inhibit the action of thrombin solutions. In relatively uncomplicated exodontio, surgical tooth extractions, and alveoloplasties, starch sponges were convenient to use and did not significantly affect the incidence of postoperative complications, the rate of healing, and bleeding time. In patients with abnormal bleeding of primary and secondary types, starch sponge was effective in controlling hemorrhage.

The use of starch sponge is not considered a substitute for ordinary precautionary measures for the detection of hemorrhagic disease, nor should it take the place of sound surgical principles which, in the presence of normal coagulation processes, will nearly always prevent undue bleeding.

Oxytetracycline for Gonorrhea

The intramuscular injection of oxytetracycline (Terramycin) has been used by B. Seia (*Antiobiotics & Chemotherapy* 4:330, 1954) for the effective treatment of gonorrhea. The preparation that was made available to him contained 100 mg. of oxytetracycline powder and 100 mg. of magnesium chloride hexahydrate in two per cent procaine, to be given by deep intramuscular injection as a single dose.

Seid's series of 50 cases shows that the intramuscular preparation of oxytetracycline is effective in treating gonorrhea (including the acute, chronic and penicillin resistant forms). Twelve cases of acute gonorrhea included in this series were rapidly and totally cured by only one injection, 16 cases of chronic gonorrhea required a second injection. From these observations, Seid concludes oxytetracycline intramuscular is a valuable drug in the armamentarium for the treatment of gonorrhea in all forms, probably the best single preparation with which he has worked. Oxytetracycline intramuscular proved to be well tolerated at the site of injection, local discomfort being encountered in only eight per cent of cases. Acute gonorrhea responds rapidly and totally to one injection.

Azaserine: Tumor-Inhibiting Antibiotic

In a paper presented at the 125th meeting of the American Chemical Society, C. C. Stock, H. C. Reilly, S. J. Budsley, D. A. Clarke, and C. P. Rhoads reported that in the course of a large experimental program screening numerous synthetic chemicals and many miscellaneous materials for antitumor activity in experimental animals, azaserine (O-diazoacetyl-L-serine) was isolated as a tumor-inhibitory compound produced in cultures of a soil microorganism. Crude filtrates of a *Streptomyces* culture were observed to retard the growth of sarcoma 180 markedly in mice even in dilutions of 1 to 8. Subsequent studies relying initially on the tumor assay and later on a microbiological assay led to the isolation, characterization, and synthesis of the active principle as azaserine.

Azaserine containing D-serine is inactive and the form with L-serine is twice as active and twice as toxic as the racemic mixture. Azaserine has shown an ability to influence growth in various biological systems including a number of mouse tumors, mouse leukemia, the microorganisms *Escherichia coli* and *Kloeckera brevis*, and the chick embryo.

Reports on the isolation and characteristics of azaserine, as well as methods of synthesizing the antibiotic, were also presented at this session.

Acetylcholine for Neurosis

Since it had been asserted by some investigators that acetylcholine is of value in the treatment of some anxiety states, particularly in those accompanied by tension, D. T. Maclay (*J. Mental Sci.* 99:809, 1953) decided to try this drug in certain patients who were responding insufficiently or not at all to psychotherapy. He began with a dose of 0.06 or 0.08 Gm. in 1 cc. of water. He gradually increased this dose until 0.2 Gm. had been reached. Although some patients tolerate 0.25 Gm. or more, caution is necessary with this dose. Immediately after the injection, the patient feels acutely ill; the pulse slows or stops; and there is a brief loss of consciousness. Maclay has learned not to feel undue concern if the patient is pulseless for 25 seconds. The face is usually red and congested, and this is followed by pallor. Within a minute or two, the patient is able to get up and walk away. Maclay prefers to give the minimum dose that produces unconsciousness. Administering 1.5 grains of secobarbital (Seconal) sodium beforehand has proved helpful in some patients who feel severe discomfort from the acetylcholine injection. As antidotes for emergencies he keeps on the tray

Plymouth

ESTABLISHED QUALITY

SPECIALTIES

BEESWAX: WHITE AND YELLOW U.S.P.

CERESINE WAXES

OZOKERITE WAXES, White and Yellow

PLYMOUTH WHITE "CIRINE" WAX
A white ceresine wax specially compounded for cosmetic creams.

PETROLATUM U.S.P. All Grades, White to Amber

PLYMOUTH CRYSTAL "E" OIL
The standard of all cosmetic white mineral oils.

PLYMOUTH BRAND WHITE MINERAL OILS U.S.P. AND N.F.
All grades from the "Extra Heavy" 340 viscosity down to the "Light" 80-85 viscosity, all far exceeding the requirements of the U.S.P. and N.F.

PLYMOLINE CREAM BASE

LANOLIN, U.S.P., Cosmetic

M. W. PARSONS
59 Beekman Street

PLYMOUTH

PLYMOUTH, Inc.
New York 38, N. Y.

COSMETIC RAW MATERIAL HEADQUARTERS

GUMS
(CRUDE, POWDERED)

ARABIC
GHATTI
KARAYA (INDIAN)
LOCUST (CAROB FLOUR)
TRAGACANTH

CASEIN
MENTHOL
(NATURAL CRYSTALS)
EGG ALBUMEN
BLOOD ALBUMEN
QUINCE SEED
JAPAN WAX

PAUL A. DUNKEL
AND COMPANY, INC.
IMPORTERS AND EXPORTERS
26 JOURNAL SQ., JERSEY CITY 6, N. J.
JOurnal Sq. 3-6400
CHICAGO: 325 NO. WELLS ST. TEL. SU. 7-2462

REPRESENTATIVES:

CHICAGO: CLARENCE MORGAN, INC.
BOSTON: P. A. HOUGHTON, INC.
PHILADELPHIA: HARRY W. GAFFNEY
LOS ANGELES: C. H. OWINGS
ST. LOUIS: C. L. IORNS CO.

epinephrine, nikethamide (Coramine), and atropine, and a long needle just in case an intracardiac injection is required. He has used acetylcholine so far in 11 patients whose histories are presented. Three appeared to obtain considerable benefit. The total impression was that it will be worth while to continue using this new remedy in selected patients.

Pentylenetrazol in Senile Patients

After a consideration of reports on the use of pentylenetrazole (Metrazol) on chronically ill elderly people, J. B. Andosca (*New England J. Med.* 250: 460, 1954) decided to evaluate this drug as an analeptic in senile states, with particular attention to the question whether it increased cerebral blood flow and raised the blood pressure, increasing the tendency to intracranial bleeding. Above all, it was desired to determine the innocuousness of this therapy for hypertensive patients.

In this study 20 patients were divided into two groups of 10 each. One group received one tablet of the drug four times a day and the other two tablets four times a day. The group receiving the larger dosage showed a greater percentage and degree of improvement than the other. This improvement was both mental and physical. Although no effect on the blood picture was demonstrable as a result of the therapy, all but five of the 20 patients gave some signs of physical and mental improvement such as greater and quicker responsiveness, less depression or confusion and a better physical status.

To determine the duration of the tonic effect the medicament was withdrawn after two months. About two weeks later the patients began gradually to regress to their former status. It is evident that to ensure a more lasting effect the drug must be given over a longer period and that after maximum benefits have been achieved maintenance doses should be used.

Dextran in Edema

The diuretic action of dextran, best known as a plasma expander, in the treatment of renal edema has been investigated and confirmed by A. W. Mollison and J. B. Rennie (*Brit. Med. J.* 1:893, 1954). In their study, dextran was given on 81 occasions to eight patients. All were at rest in bed, on restricted salt intake, and a moderately restricted fluid intake. Seven patients received a high and one a normal protein intake. The dextran was used in a standard commercial six per cent salt-free preparation, and three 10 per cent salt-free preparations of large, medium, and small molecular size. Diuresis and reduction of the edema occurred with all these preparations, regardless of molecular size or concentration, but the effect lasted longest with the large molecular preparation. However, in all cases the edema reaccumulated. Dextran had no adverse influence on renal function. Toxic reactions to infusion were noted in all cases, and consisted of severe headaches, occasional nausea and vomiting, and fever; two patients developed transient hepatic enlargement; one patient developed fever, dyspnea, cough, and scanty rales at the lung bases after the fourth infusion of small-molecule dextran, and another developed the same symptoms though less severely with a similar preparation. The investigators believe that the reactions they encountered were not allergic so much as due to overloading of the circulation, and they found that slowing the rate of infusion reduced the severity of the reaction.

Procaine Amide in Pylorospasm

In reporting on the use of procaine amide (Pronestyl) in the treatment of pylorospasm in infants, M. S. Sadove, I. L. Kieley, J. A. Rooney and A. Guzauskas (*J. A. M. A.* 154:1328, 1954) note that there is no previous record of the administration of this drug in the management of this disorder. Its mode of action in the alleviation of spasm of the upper gastrointestinal tract is unknown. On the basis of their knowledge of the pharmacology of this drug, these workers postulate that its mode of action is due to anesthetization of the gastric mucosa that causes a diminution in local irritability and an elevation of thresholds to all gastrointestinal stimuli, a relaxation of the pyloric sphincter, and a quiescence of all gastrointestinal motility. Investigations to test this hypothesis are in progress.

The findings in these cases and the course of the infants described by these clinicians suggests that procaine amide can play an important role in the alleviation of spasm in the upper gastrointestinal tract of infants. Four cases of pylorospasm in which marked improvement followed its use are presented. It did not appear to be of benefit in two cases of congenital hypertrophic pyloric stenosis in alleviating vomiting before pyloromyotomy. It seemed to be helpful in the postoperative management of these patients. It may prove to be an aid as a therapeutic test in pylorospasm. Further trial of procaine amide administered orally in pylorospasm in infants is suggested. It is pointed out that any child receiving procaine amide should be checked carefully for the various side-actions of this drug. Although these effects have not been observed, Sadove and his associates have watched carefully for evidence of cardiac changes, central nervous system stimulation or depression, and blood constituent changes.

Proteolytic Enzymes in War Wounds

In the opinion of A. W. Spittler and R. E. Parmenter (*J. Internal. Coll. Surgeons* 21:72, 1954) streptokinase-streptodornase and crystalline trypsin are extremely valuable adjuncts in the management of war wounds complicated by necrosis and infection. Their use is not a substitute for surgical debridement. Whenever foreign material is contained in a wound, cure should not be anticipated until the foreign matter is removed, either surgically or by extrusion on irrigation. Osteomyelitis involving cancellous bone primarily is improved or arrested temporarily, but relapses occur frequently because of inability to obtain contact of the enzymes with the multiple localized abscesses prone to develop in cancellous bone. Streptokinase-streptodornase appears to produce better results than trypsin in deep-seated wounds with multiple sinuses. Administered in fresh operative wounds, it causes continued mild bleeding. Spittler and Parmenter did not find this a cause for concern in their patients. Trypsin acts more rapidly than the others and is more effective in surface wounds. Both streptokinase-streptodornase and trypsin are of practical benefit because of their ability to digest necrotic tissue, thereby cleaning wounds, and to discourage bacterial growth. In some instances enzymatic debridement alone was sufficient for healing; in others it cleaned the wounds preparatory to definitive surgical intervention. These agents have not been observed to affect living tissue except by causing skin irritation and burning pain that can be controlled by antihistamines.

ESSENTIAL OILS
ABSOLUTES
and
CONCRETES
From
Continental & Colonial France
PRODUCTS OF
ADRIAN & CIE., (Marseille)

One of the World's Most Important Suppliers

U. S. Exclusive Distributor:

WILLIAM A. HOFFMAN, INC.
366 BROADWAY, NEW YORK 13, N. Y.
COrtland 7-0804 Cable: Aromical, N. Y.

40 Items prompt from our New York stock

Code-Dates Your Package
As You Pack It . . . *automatically*

Imprints code-dates on *cans, jars, bottles* as an integral production-line operation . . . during filling, capping, cartoning, etc. Makes sharp, permanent, accurately located marks on bottom, top or ends—even recessed surfaces. Fully automatic, the MARKOCODER synchronizes with speed of other mechanized operations . . . accommodates packages of different size . . . features 1-minute changeover for new code-date.

Write for full details today.

Gottscho **ADOLPH GOTTSCHO, INC.**
Hillside 5, N. J.
50 Years of Leadership

(In Canada:) RICHARDSON AGENCIES, LTD., Toronto and Montreal

Old Empire

Don't Gamble with New Items

Avoid unnecessary costs and equipment investment. Charges below your own overhead made possible by specialization.

- SHAVE CREAMS
- CASTILE SHAMPOO
- TOOTH PASTE
- CREAM SHAMPOO
- DEODORANTS
- PHARMACEUTICALS
- HAIR PREPARATIONS
- BEAUTY CREAMS
- ALCOHOLIC PREPARATIONS

AUTOMATIC EQUIPMENT HANDLING
Bottles • Jars • Collapsible Tubes

Please notice: All equipment — including soap crutchers and freezing tanks — is stainless steel.

OLD EMPIRE MFG. CHEMISTS, INC.
Mt. Prospect & Verona Aves., Newark, N. J.
HUmboldt 4-2121

Fragra-scents
FINER PERFUME BASES

Modern • Exotic
Floral • Bouquet
Types

Manufactured by:

NEUMANN, BUSLEE & WOLFE, INC.
5800 NORTHWEST HIGHWAY CHICAGO 31, ILL.

KOSTER KEUNEN ★ BEESWAX

U. S. P. Pure Sunbleached
U.S.P. Pure Yellow Refined

Office and Refinery: Sayville, N. Y.

MICRO-CRYSTALLINE PETROLEUM WAXES

OZOKERITE • SPECIAL WAX BLENDS • CERESINE

Ask for samples, prices and technical data

KOSTER KEUNEN . . . . SAYVILLE, N. Y.

PHONE: SAYVILLE 400

... the finest LANOLINS for cosmetics & pharmaceuticals

GOLDEN DAWN LANOLIN
Regd. Trade Mark.

U.S.P., B.P., D.A.B., etc.
ANHYDROUS & HYDROUS
Wool Alcohols B.P., Technical & Commercial Lanolins and all Woolgrease derivatives.

WESTBROOK

THE GREATEST NAME IN LANOLIN

Samples, quotations, weights and delivery details forwarded with pleasure.

WESTBROOK LANOLIN COMPANY
BRADFORD · ENGLAND
Cables: **LANOLIN, BRADFORD, ENG.**

SUBSIDIARY OF WOOLCOMBERS LIMITED · BRADFORD · ENGLAND

Is Your Production Department HALF-SLAVE... HALF-FREE?

Lincoln asked it of the nation! But it can apply as well to a production department! No matter how efficient the machines or labor, there are times when things go wrong! A sudden pre-seasonal spurt of orders that it will take weeks to catch up on, while your trade is screaming for goods ... Or a new product that just can't be sandwiched in to the schedule!

Sure "production" miscalculated! But so does "sales" and so does management! Nobody's right all of the time. Don't lower the efficiency of your production men by expecting them to climb a wall without help! Call in Strong, Cobb ... your "emergency production department."

Result: your production department becomes *more* efficient and your customers are happy with their goods rolling in on time. Cost: all things considered, probably no more than in your own plant.

Ask us to prove it!

STRONG|COBB

Pharmaceutical Manufacturers to the Trade—Since 1833

STRONG, COBB and COMPANY, Inc.

2654 Lisbon Road, Cleveland 4, Ohio

In California: 12912 Chadron Avenue, Hawthorne, California
In Canada: Strong, Cobb of Canada, Ltd., 388 St. Paul Street, W., Montreal
American Chlorophyll Division, Lake Worth, Florida

Compounder's Corner

Dermatologic Bases

It is pointed out by P. L. Burrin (*J. Am. Pharm. Assoc.*, Pract. Ed. 15: 32, 1954) that the modern practice of medicine involving dermatologic medication covers a variety of preparations which are designed primarily for the treatment of diseases of the skin. Such prescriptions may be grouped in the following broad pharmaceutical classifications: ointments, suspensions, emulsions, solutions, and dusting powders.

Burrin's discussion is concerned with various types of ointment bases, including, among others, vanishing cream bases, washable ointment bases, and water-absorbable bases. The vanishing cream type base, says he, may be exemplified by the following formula:

Stearic acid	24
Cetyl alcohol	1
Triethanolamine	2
Diethylene glycol monoethyl ether (Carbitol)	20
Water, distilled	53

Such bases are quite desirable from a cosmetic viewpoint, also because water-soluble ingredients can be incorporated in them forming a prescription which can be rubbed on the surface of the skin and with continued rubbing will disappear. If insoluble powders are incorporated in such a base, the only residue would be that of the incorporated powder. Such bases have the disadvantage of not being permanently stable. The formula contains a large percentage of water which is lost quite readily by evaporation on storage. However, extemporaneous prescriptions, which are always used promptly, can be dispensed using such a base.

The washable ointment base is exemplified by Hydrophilic Ointment U. S. P. This type of base has a wide variety of compatability as well as therapeutic efficacy. It exhibits more body and has more the feel of the ointment than the vanishing cream base. A modification of this formula has been found to be somewhat better in texture and also provides a product with slightly less petrolatum. At the same time, it contains more humectant and water than the official formula. The U. S. P. and the modified formulas are:

	U. S. P. Formula	Modified Formula
Sodium lauryl sulfate	1	1
Stearyl alcohol	25	25
White petrolatum	25	20
Glycerine	.....	15
Propylene glycol	12	.....
Methylparaben	0.025	0.025
Propylparaben	0.015	0.015
Water, distilled	37	39

Upon aging samples of this product, it would appear glycerine is slightly more advantageous than propylene glycol in preventing the base from drying out, but it is said by some to be more dehydrating to the skin. This advantage is only slight, and propylene glycol could be used satisfactorily. This product can be stored in the usual ointment-dispensing jars for at least one year without sufficient loss of moisture to be detected in the quality or consistency of the product.

Water-absorbable bases are highly desirable where the prescription bases containing water are unsatisfactory. Hydrophilic Petrolatum U. S. P. is a product of this type. The U. S. P. formula and a very satisfactory modification of it are:

	U. S. P. Formula	Modified Formula
Stearyl alcohol	3	3
Cholesterol	3	1
White wax	8	8
Anhydrous lanolin	..	15
White Petrolatum	86	73

This product can be prepared very light in color if the colors of the ingredients are controlled. Cosmetic grade lanolin can be obtained in the trade and it is lighter in color than the commercial anhydrous lanolin. Such ointment bases have a high degree of pharmaceutical compatibility, and can absorb large proportions of water.

Self-Emulsifying Glyceryl Monostearate

In discussing self-emulsifying glyceryl monostearate, S. L. Collier (*Soap, Perf. & Cosmetics* 27:388, 1954) observes that commercial glyceryl monostearate actually consists of a mixture of the mono-, di- and tristearates and a small amount of free fatty acids. Auxiliary emulsifiers are incorporated into these mono-esters to render them self-emulsifying, and these may include the alkali, ammonium and amine soaps, aryl sulphonates, sulphonated fatty alcohols, sulphonated triglycerides and sulphonated mono-glycerides, or polyglycol esters. Glyceryl monostearate is marketed in the form of a hard, waxy solid, or in powder form, and is usually a white to cream-colored product.

The stability of preparations, based on the non-ionic surface-active agent glyceryl monostearate towards solutions of salts, hard water, alkaline earth, and heavy metal salts, weak acids, and such, is usually far greater than that of preparations based on cationic and anionic agents of a similar degree of water solubility. The ester may be used in conjunction with either of these two types of surface-active agents, such combinations frequently having a greater effectiveness than any one of the products used alone. This type of non-ionic surface-active product is also superior to the anionic and cationic agents in its range of compatibility with solvents and chemicals, such effectiveness being further improved by the addition of many solvents, including alcohols, glycols, glycol ethers or fatty acids.

Glyceryl monostearate, if free from ionizing auxiliary emulsifiers of the soap type, is one of the agents considered suitable for the production of emulsions, the final *p*H value of which is to be less than 7. Because it possesses emollient properties, a cream containing the monostearate and water only, is superior in this property to one based substantially on emulsified stearic acid, as found

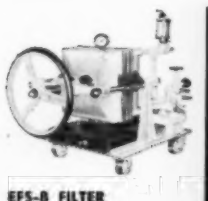
BUSH COMPOUNDS *Prove*

A *Better* SCENT APPEAL
Means
A *Better* SALES APPEAL

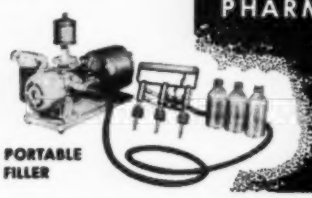
W. J. BUSH & CO., Inc.

Essential Oils

19 West 44th STREET, NEW YORK 36, N. Y. ● Murray Hill 2-5712



EFS-B FILTER



PORTABLE FILLER

For FILTERING and FILLING

small plant or batch lots of

PHARMACEUTICALS, COSMETICS, CHEMICALS, FOODS, DRUGS, SOAPS, ETC.

Two Ertel units that make small production efficient. They have all the desirable features of Ertel high production equipment: EFS-B FILTER has single hand wheel for simple trouble-free operation, bronze or stainless circulatory system, accommodates accepted Ertel Asbestos Filter Sheets. PORTABLE FILLER has automatic overflow system, non-drip spouts, bottle size flexibility up to gallons. And, both units can be easily moved from place to place. Write for detailed information on this important equipment . . . it belongs in your plant.

ERTEL ENGINEERING CORPORATION

KINGSTON 1, NEW YORK

Branch Office & Showroom Located in New York City

COMPLETE LINE OF *Liquid Handling Equipment*

ERTEL

DEPEND ON

HALBY

FOR TOP QUALITY IN

THIOGLYCOLATES

Tailored to your individual needs:

- Extracted Ammonium Thioglycolate
- Distilled Thioglycolic Acid
- Calcium Thioglycolate
- Custom-made Esters and Derivatives of Thioglycolic Acid

We invite your inquiries

HALBY PRODUCTS CO.

WILMINGTON 99, DELAWARE

SALES REPRESENTATIVES:

Stanton Sales Co., 40 E. 40th St. New York 16, N. Y.
McNerney Chemical Corp., Los Angeles 23, Cal.
V. & S. March, 6346 MacDonald Avenue, Montreal 29, Quebec.

for example, in the stearic type of vanishing cream. Monostearate creams, do not normally exhibit pearliness. Glyceryl monostearate has been employed with advantage in stearate creams to prevent lump formation, where it also produces creams of good texture, notably free from syneresis and with excellent spreading properties on the skin.

In discussing the uses of the self-emulsifying grade of glyceryl monostearate, Collier points out that the compound acts as an excellent emulsifying agent for oils, solvents and waxes, where stable neutral and viscous or cream-like products are desired. Where fluid emulsions are required it has been recommended that small additions of sulfated hydrocarbons be added to the emulsions.

Since glyceryl monostearate dispersions in hot water give viscous fluids or creams, it is suggested that it can replace vegetable gums because the thickening action of the product takes place immediately on cooling, and no time is lost in waiting for a swelling action to occur as is the case with many gums and some of the newer agents of the cellulose ether type. Conversely it has been suggested that for emulsions produced with the aid of glyceryl monostearate, gelatin or gums can be beneficially utilized as auxiliary stabilizers.

The product has been widely used in the manufacture of ointment bases. Many salves and ointments containing lanolin, wool wax alcohols, and similar products become much more easily removable from clothing if small percentages of this cosmetic raw material are initially incorporated in the preparations, the stains of these latter products being completely eliminated on washing.

Use may be made of the product as a solvent for polar and non-polar materials, such as soap and mineral oils, or for soap, alcohol and water, also vegetable oils, sterols, phosphatides, and pharmaceuticals.

Because the material possesses free hydroxyl groups, it has been reported as a useful solvent for bromo-acid in lipstick manufacture. It has also been suggested as a vehicle for water-soluble dyes, with a view to rendering the latter effective on contact with water.

The addition of 0.1 per cent of the self-emulsifying monostearate to pigments in water helps to maintain a uniform dispersion of the pigment, enabling the composition to be stored, or transported, without separation. In the case of heavy pigments a higher percentage of the stearate would probably be desirable. In general, a 2 or 3 per cent stock dispersion can be made, and a suitable amount of this added to the colors with agitation. Titanium dioxide, carbon black, and similar pigments can be dispersed readily in the cold in a monostearate emulsion, giving permanent suspensions of the product. The monostearate has a distinct wetting effect upon powders or pigments in oil or non-aqueous solvent media, aiding grinding besides dispersion or suspension.

Chelating Agents as Hair Rinses

For some years, say L. Goldman and J. Baskett (*Arch. Dermat. & Syph.* 69: 622, 1954), it has been customary to use sodium hexametaphosphate rinses following various types of shampoos. This type of medicated rinse removed any soaps remaining on the hair and scalp. In the past year, chelating agents have been substituted. Their most extensive experience has been with a mixture in distilled water of equal parts of disodium ethylenediaminetetra-acetate dihydrate and trisodium ethylenediaminetetra-acetate monohydrate. A one per cent solution of this was used, whose pH varied around 7.0.

Immediately after the rinsing of the shampoos, this solution is used freely over the scalp and then rinsed with clear water. In a series of 80 patients followed for periods averaging three weeks to one and one-half years, there has been no irritation associated with the use of this agent. The hair feels soft and smooth after its use. Persons especially with dry scalp, who have complained of itching and stiffness of scalp after the use of a shampoo, have been able to tolerate shampoo followed by the chelating agent. There is no proof that this chelating agent interferes with the action of the shampoo, even of the so-called medicated shampoos. The use of this mixture of chelating agents, not incorporated in the shampoo formula, allows for more flexibility in the use of the shampoo, more activity from the various types of medicated shampoos and perhaps some local activity on the pityriasis. Because of the possibility of these chelating agents lowering serum calcium through absorption, detailed studies were done in only two patients following five-minute contact of the scalp with these agents. There were no changes in serum calcium and phosphorus.

Aliphatic Woolwax Alcohols

In his comprehensive review, H. W. Knol (*J. Am. Oil Chem. Soc.* 31:59, 1954) observes that woolwax is a mixture of esters of higher fatty acids with higher alcohols. The alcohols may be divided into three classes: sterols, triterpene alcohols, and aliphatic alcohols. Although much is now known about the composition and structure of the fatty acids, sterols, and "triterpene alcohols," this is not the case with the aliphatic alcohols.

Nonetheless the composition of the group of aliphatic woolwax alcohols has been the subject of investigation by many chemists for more than 60 years. The fact that woolwax unsaponifiable matter is a very complex mixture, containing many compounds differing in type and properties, has led to contradictory statements. The confusion has been increased by the sometimes misleading summaries of several reviewers.

Two periods of research can be distinguished. The first period has brought very few results: the possibility of the presence of unsaturated alcohols, the probability of the presence of branched chain alcohols, but no certainty of the presence of any one alcohol. The second period, started after 1950, is characterized by systematic research. Twenty-two alcohols have been isolated, belonging to four series of alcohols: normal alcohols, diols, iso, and ante-iso branched chain alcohols. It is striking that none of the investigators mentions the presence of unsaturated alcohols. Seven normal alcohols are claimed to have been identified, but closer investigation on this subject seems desirable. Five 1-2 dihydric alcohols have been isolated, the identification of which is hampered by the fact that they probably have a branched chain. Ten branched chain alcohols have been completely identified, six belonging to the ante-iso series of odd carbon number, four being isoalcohols of even carbon number. Finally about 25 per cent of the woolwax alcohols is still unknown material and waiting for further elucidation.

These systematic investigations of recent years have revealed the remarkable fact that the aliphatic woolwax alcohols are composed of the same four series of components as woolwax acids, namely: the normal-, hydroxy-, iso, and ante-iso series. Much more has to be done, however, to gain a complete insight into the total composition of the aliphatic woolwax alcohols.

Fragrances developed by *Synfleur* out of the wealth of its 65 years of experience delve into the heart of your perfuming problems.

Creative, artistic, efficient and economical, original *Synfleur* compositions and perfume specialties are available or can be developed by our skilled chemists to meet your every fragrance requirement.

New product or old, these many decades of inventive skill and rewarding experience are your best assurance that with *Synfleur* your fragrance needs will be fully satisfied.

Synfleur **SCIENTIFIC LABORATORIES, INC.**

MONTICELLO, N. Y.

Founded 1889 by Alois Von Isakovics

ATLANTA • DETROIT • NEW YORK • HAVANA • RIO DE JANEIRO • MEXICO, D. F.
Chicago • Melbourne • Burma • Hong Kong • Bogota • San Jose
Ciudad Trujillo • Guayaquil • Guatemala City • Calcutta • Wellington
Managua • Panama • Asuncion • Manila • San Salvador • Montevideo
CANADA: Herman & Leal • 637 Craig Street West • Montreal, Quebec

Perfumer's Shelf

Brazilian Essential Oils

In a brief discussion of Brazilian essential oils appearing the the *Perfumery and Essential Oil Record* (45:10, 1954) it is pointed out that Brazilian sassafras oil, of value in many technical preparations, is distilled from the wood of the *Ocotea pretiosa*, known commonly as "Canela Sassafraz," which grows abundantly in the vast forests of Santa Catarina along the banks of the Itajai River. Sassafras wood is sawed into blocks, then chipped and reduced to sawdust before entering stills. The oil is collected in Florentine flasks and filtered through flannel, cotton and filter paper, the better-equipped distilleries using centrifuges for this purpose. The wood yields from one to 1.5 per cent of oil.

Brazilian sassafras oil is used largely for the isolation of safrole, and its conversion into heliotropin. The product goes into manufacture of soaps, sprays, disinfectants, and deodorants. The oil is light yellow to greenish-yellow; it is soluble in eight to ten parts of 80 per cent alcohol, and has the following characteristics:

Specific gravity	**1.093**
Refractive index	**1.5352**
Congealing point	**8.7°**

The successful introduction of the mint plant, *Mentha arvensis*, has made Brazil a producer of mint oil and menthol. Brazilian crude mint oil, according to the Institute de Pesquisas Tecnologicas in Sao Paulo, has the following characteristics:

Specific gravity	**.887**
Refractive index	**1.4586**
Ester content	**11.7 per cent**
Menthol content	**85 " "**

Menthol is extracted from the purified oil by slow freezing down to —5° C. in three stages. A centrifuge at a speed of 1,200 revolutions per minute separates the crystals from the dementholized oil. The crystals dry for 36 hours in a slow air current at a temperature of 26°.

The production of orange oil in Brazil is a comparatively recent enterprise. With modern equipment, oranges are processed for oil and then crushed to make concentrated orange juice, orange wine and brandy. In the process, oranges are dumped into an extractor with two knobbed rotating discs. The discs lacerate the oil sacks of the peel and free the oil.

Of the several varieties of oranges grown in Brazil, the best two for oil are the large Bahia and the smaller and more recently developed Bahianinha. The principal characteristics of these oils are:

	Bahia	*Bahianinha*
Specific gravity	**.8433**	**.8470**
Refractive index	**1.4730**	**1.4734**
Evaporation residue	**2.14%**	**4.22%**

Australian Essential Oils

In accepting the 1954 Fritzsche Award at the 125th national meeting of the American Chemical Society, A. R. Penfold stated that during the last few years in the field of essential oils there has been a shift of emphasis away from the constitutional studies of the organic chemist and towards the biological side. Investigation of paths of synthesis and function of the oils in the plants has brought in geneticists, plant biochemists, and plant physiologists, who have joined forces with organic chemists in attacking these problems.

Australia is extraordinarily rich in essential oil-yielding plants; oil-bearing families make up about 90 per cent of the flora. Many unusual substances are found in Australian essential oils. Among them are: the β-diketones, angustione, leptospermone, and calythrone; sesquiterpene ketones, eremophilone, hydroxyeremophilone; the 9-carbon ketone, cryptone; phenol ethers, baeckeol and croweacin; and many others. In considering what should be done with these compounds, Penfold feels that they should not remain academic curiosities—they should find some use as raw materials for other products or they should find application in pharmacology.

Terpineol from Indian Turpentine Oil

J. Verghese and L. M. Yeddanapalli (through *Manuf. Chem.* 24:535, 1953) have described a practical method of producing terpineol from Indian turpentine oil. It is a two-step process in which *alpha*- and *beta*-pinenes are first hydrated to terpin hydrate and then dehydrated to terpineol. In this process, 1 kg. of first-quality turpentine oil containing 33 per cent pinenes is shaken with 400 Gm. of one per cent gum Chimba solution for some time to get a stable emulsion. This is then diluted with 2 kg. of 40 per cent sulfuric acid and mechanically shaken intermittently for 35 hours. The terpin hydrate that separates out is washed free of the acid with excess of water and dilute sodium carbonate solution. Adhering sodium carbonate is neutralized with a minimum quantity of 0.1 to 0.2 per cent sulfuric acid. The terpin hydrate is subsequently converted into terpineol by reflexing with twice its weight of 0.1 per cent of sulfuric acid. Typical constants of the crude terpineol obtained are as follows:

Specific gravity	**0.9200**
Index of refraction	**1.4792**
Percentage water	**9.81**

The oil left after the separation of the terpine hydrate had a pleasant smell, with the following constants:

Specific gravity	**0.8710**
Index of refraction	**1.4728**
Iodine number	**166.9**
Acid value	**0.11**
Saponification number	**2.50**
Hydroxyl content	**1.543 per cent**

About 68 per cent of the spent oil boiling at less than 170° could be used as inferior turpentine. On steam distillation, the residue yielded a pine oil

A NEW PERFUME is a work of art; its value incalculable; its formula a closely guarded secret. Only a perfumer of skill and years of experience can create it and only expert compounders can turn his formula into fragrant liquid. Each step in perfume making is vital. Each ingredient valuable in itself—priceless in the composition. Weighed, compounded, stored, the mixture lies for months . . . with each day gaining power, blending the sweet and pungent aromas, developing character. Then at last it is ready to savour, its bouquet rich and ripe, its fragrance indescribable — unique — magnificent! Thus does ROURE-DUPONT create a perfume for you. Combining the knowledge of centuries with the techniques of today, we can design a perfume to your taste, to your need and to your purse. Entrust us with your wishes and be sure of the finest in fragrance.

PERFUME CONCENTRATE ONOCLEA 3941 . . $22.00 lb. An exciting fragrance in which the deep, spicy note of Oregano predominates over richly blended florals. Subtly intoxicating, long lasting and with uniform evaporation at all stages, this is truly a great addition to Roure-Dupont's line of fragrances.

PERFUME CONCENTRATE CEREUS 3864 . . . $32.00 lb. A floral bouquet of great delicacy, its character a delightful blend of jasmine, honeysuckle and magnolia. Both fresh and warm notes mingle to produce a most interesting fragrance—young, yet sophisticated; light, yet infinitely long-lasting.

ESSENTIAL OILS AROMATIC CHEMICALS PERFUME BASES

Roure-Dupont inc.

General Offices: 366 Madison Avenue, New York 17, N. Y.

Chicago Branch: 510 North Dearborn St.

Los Angeles Branch: 5517 Sunset Boulevard, Hollywood

Sole Agents in United States and Canada for:

ROURE-BERTRAND FILS et JUSTIN DUPONT Grasse (A.M.) France • Argenteuil (S.&O.) France

substitute having the following constants:

Specific gravity	0.9292
Index of refraction	1.4940
Iodine number	165.35
Hydroxyl content	2.653 per cent

Brazilian Pepermint Oil

In a short report on Brazilian peppermint oil, E. Hardtmeier (*Perf. & Essent. Oil Rec.* 44:386, 1953) states that, while no fully reliable data is available, it is estimated that culture of mint in Brazil for commercial exploitation was started about 1936, but the culture only assumed really larger proportions in 1941, when the principal mint suppliers, China and Japan, were practically cut off from consuming markets. Brazil plants the Japanese or "Arvensis" variety, which gives a higher yield in menthol than the Piperita type. The latter yields a higher priced oil much appreciated because of its sweet flavor by the perfume industry in particular. Piperita is planted widely in the United States and several European countries, where no attention is being paid to the extraction of menthol crystals but only to the fine aroma of the oil.

An average analysis of Brazilian raw peppermint oil, Arvensis type, reads as follows:

Specific gravity	0.897
Refractive index	1.4595
Optical rotation	38.8°
Esters as menthyl acetate	6.8 per cent
Free and combined menthol	78.3 " "

Oil of Wild Chenopodium Ambrosioides

In a report on the essential oil of wild *Chemopodium ambrosioides*, T. Takemoto, N. Takahashi, and T. Nakajima (*J. Pharm. Soc. Japan* 73:1021, 1953 through *Chem. Abstr.* 48:2329, 1954) state that steam distillation of the dried plant yielded 0.33 per cent of an oil with the following properties:

Specific gravity	0.9370
Specific rotation	—19.81°
Index of refraction	1.4840
Acid number	0.42
Ester number	

Fractionation of the oil gave 24 per cent *d-alpha*-pinene, 57.1 per cent *l*-pinocarvone, 1.1 per cent ascaridol, and 7.1 per cent *d*-carvone. Catalytic reduction of 7.5 Gm. of pinocarvone in 45 cc. of methanol with 1 Gm. palladium-carbon gave 6.5 Gm. of *d*-pinocamphone boiling at 207 to 209° C.; a semicarbazone melting at 231° C. Oxidation of pinocamphone with potassium permanganate gives *d*-pinonic acid melting at 68.5° to 70° C.; a semicarbazone melting at 202° to 203° C.

Oils of Myristica Fragrans

A. D. Pishawikar and D. G. Pishawikar (*Current Sci.* 22:81, 1953) report that extracting *Myristica Fragrans* or nutmeg aril with carbon tetrachloride and removing the solvent gives a red oil in 26 per cent yield. The oil had the following characteristics:

Specific gravity	0.9884
Index of refraction	1.4850
Saponification number	108
Iodine number	153-7
Reichert-Meissl number	7.2
Polenski number	0.719
Acetyl number	65-7
Acid number	3.4
Unsaponifiable matter	35 per cent

Steam distillation of the crushed aril, extracting the distillate with ether, and evaporating the ether gave six to seven per cent of a sweet-smelling essential oil. The residue after steam distillation was filtered off, dried, and extracted with carbon tetrachloride, and the solvent evaporated to give a red oil in 18 to 20 per cent yield. It had the following properties:

Specfic gravity	0.9769
Index of refraction	1.4835
Saponification number	161-2
Iodine number	118-9

Essential Oils from Eastern Belgian Congo

In reporting on some essential oils from the eastern part of the Belgian Congo, A. G. Neybergh (*Bull. agr. Congo Belge* 44:1 and 319, 1953, through *Chem. Abstr.* 48:956, 1954) states that the crude oils from *Eucalyptus smithii* had the following range of properties:

Specific gravity	0.9099-0.9148
Index of refraction	1.4586
Specific rotation	4°24'-5°42'
Acid number	0.0-0.84
Saponification number	2.38-4.90
Ether number	2.10-4.90
Solubility in 70 per cent alcohol	3.0-4.2 vol.

The oils contained 66.5 to 71.0 per cent of cineol and no phillandrene.

The average characteristics for *E. citriodora* were:

Specific gravity	0.8728
Index of refraction	1.4552
Specific rotation	0°15'
Citronellal content	57.9 per cent

During five months' storage the ratio of the citronellal decreased 0.4 to 3.8 per cent.

According to Neybergh, the oil from the leaves of *Melaleuca leucadendron* had the following characteristics:

Specific gravity	0.9354
Index of refraction	1.4868
Specific rotation	—1°09'
Saponification number	11.50
Acid number	8.27
Ester number	3.23
Acetyl number	48.61
Cineol (phosphoric acid method)	8.0 per cent
Phenols	5.0 " "
Ketones	2.0 " "

The average of the physical properties of 150 samples of the oil of *Geranium rosat* were:

Specific gravity	0.8962
Index of refraction	1.4673
Specific rotation	—11°31'
Saponification number	63.98
Acid number	3.99
Ester number	60.09
Acetyl number	207.8
Formyl number	144.15
Total esters	25.54 per cent
Total alcohols	69.68 " "
Free alcohols	53.09 " "
Citronellal-rhodinol	42.67 " "

Distillation of this oil under reduced pressure improved the characteristics and organoleptic properties.

Oil of *retiveria zizanioides* had the following properties:

Specific gravity	1.0083
Index of refraction	1.5236
Specific rotation	29° 50'
Saponification number	36.67
Acid number	24.74
Ester number	13.64
Acetyl number	141.82

Oil of lemon grass (*Cymbopogon citratus*) from eastern Belgian Congo had the following characteristics:

Specific gravity	0.8847
Index of refraction	1.4849
Specific rotation	—0° 18'
Citral ratio	71.3 per cent

Animal Health

Photosensitization in Cattle

According to W. J. Gibbons (*Auburn Vet.* 9:177, 1954 through *N. Am. Vet.* 35:348, 1954), photosensitization as it occurs in this country may be divided into two types, one of which is manifested as an uncomplicated dermatitis. In the other type, called icterogenic photosensitization, there are toxic and systemic manifestations in addition to the skin lesions. The incidence of light sensitization in the Southern states has increased in recent years and has caused some mortality.

Light sensitization manifested by an uncomplicated dermatitis is the most common form in the United States, and has followed the supposed eating of alsike clover, bur clover, buckwheat, rape, St. John's wort and other plants, especially legumes. There is superficial necrosis of the white and lightly pigmented areas of the skin, which begins with serous exudation and matting of the hair and is followed by exfoliation. Recovery is the rule following removal of the cause, protection from the sun and treatment of the dermatitis.

Icterogenic photosensitization is more serious. This type, characterized by dermatitis, jaundice, necrosis of the liver, and deaths due to toxic degeneration of the liver and kidneys, has been known for years in poisonings due to lantana in the Southeast and to lechuguilla in the Southwest.

Common symptoms include a dejected appearance, excessive salivation, lacrymation and diarrhea. Later, the subjects lick themselves, scratch, switch their tails and shake their heads as though attacked by flies. In a short time the lesions of photosensitization appear. The urine may appear dark reddish-brown. Mortality varies from two to 10 per cent.

Preventive measures include removal of cattle from pasture when conditions are favorable for the development of icterogenic substances in the grazing plants, mowing or burning suspected pastures to remove suspected forage, allowing new grass to reach a height of six to eight inches before grazing is permitted, avoidance of overgrazing, and supplemental feeding to prevent overgrazing.

Treatment includes the removal of the cause and protection from the sun. For skin lesions, carron oil or zinc oxide in oil are recommended; for udder lesions, the following ointments: zinc oxide, iodine, furacin or sulfathiazole (five per cent). Early parenteral treatment with sodium thiosulfate reduces mortality to a minimum. Reagent grade sodium thiosulfate is administered intravenously at the rate of one ounce per 100 pound of body weight, usually in a 30 per cent solution. Commercial grade sodium thiosulfate can be given orally at the rate of two ounce per 100 pound, but is not so prompt in action. Intravenous treatment should be repeated or supplemented by oral dosage of one ounce of sodium thiosulfate per 100 pound.

Effects of Vitamin A Levels in Chickens

Observations on groups of chickens continuously receiving feeds containing five different levels of vitamin A were reported at the 125th meeting of the American Chemical Society by C. H. Sallenger, D. B. Parrish, P. E. Sanford and J. S. Hughes. In their study chicks fed a depletion diet the first week were divided into groups 1 to 5 and continuously fed, respectively, 500, 750, 1000, 1500, and 2000 U.S.P. units of vitamin A per pound of feed. The purpose was to determine the biochemical and physiological effects and at what ages different responses occurred among groups. These data will help to clarify true vitamin A requirements and to understand results in less extensive studies. To 16 weeks of age, cocks in group 1 consistently grew less than those of the other groups. Consistent differences in growth of pullets were not found. Through the 22nd week definite differences in health, appearance, hematology, and tissues were not observed. Egg production of groups 4 and 5 started the 22nd and 23rd weeks; 100 per cent of pullets in these groups were laying the 29th week. Production of groups 1 to 3 started two or three weeks later; rate of production was especially small in group 1. Vitamin A concentrations in blood serum, livers, and eggs of birds in groups 1 to 5 increased in the same order as vitamin A supplementation in the feed given.

Chlorophyll in Dog Foods

As part of a symposium on chlorophyll presented at the 125th national meeting of the American Chemical Society, F. N. Peters, Jr. discussed the value of chlorophyll in dog foods. He pointed out that the addition of this substance is not a matter of improved nutrition, nor does it offer any economic advantages. It is a question of esthetics with the owner of the dog and a question of appetite appeal to the dog. Thus, in adding anything to a dog food it is necessary to be assured that it is palatable, does not have any adverse effect on the health or reproductivity of the animal, and offers some definite advantage either to the dog or its owner.

Since it is obvious that the primary purpose of adding chlorophyll was to reduce objectionable breath and body odors so common to many household pets, it was necessary to determine whether any substantial reduction in these objectionable odors could be brought about by the addition of any quantity of chlorophyll. An entirely satisfactory method of measuring the degree of odor reduction has not been developed, but by the use of a large number of dogs in the hands of numerous observers, sufficient evidence was obtained to warrant the inclusion of the deodorant at a specific level.

The next problem was to determine whether at this level the food lost palatability and effectiveness when consumed over long periods of time. Samples of the food were distributed to a number of kennels and the kennel owners re-

ported on the general acceptability of the product, noting any changes in appetite, weight, condition of hair, and finally the reduction of odor. Over a longer period of time whelping records were collected and it was indicated that no statistical differences in reproductivity could be attributed to the use of the deodorant.

Antibiotics in Poult Rations

The influence of an antibiotic supplemented diet on the growth, variability and efficiency of food utilization in White Holland turkey poults was studied by J. C. Atkinson, R. V. Boucher and W. E. Callenbach (*Poultry Sci.* 33:332, 1954). Practical type diets were used in a series of three feeding experiments. The antibiotics employed were crystalline Terramycin hydrochloride and crystalline Aureomycin hydrochloride. In the first experiment poults were fed two diets, one that contained meat scrap and fish meal, and the other of similar composition but with these constituents replaced by soybean oil meal on an equivalent crude protein basis. Several levels of Terramycin supplementation were fed during the experimental period of eight weeks. The effects of lower levels of Terramycin supplementation were investigated in a second experiment using the same diets, again for an eight-week period. In a third experiment, using a diet that contained meat scrap and fish meal as the starting diet, the effects of continuous Aureomycin supplementation to 28 weeks were investigated. A single level was used, 4.5 Gm. per ton. This choice was indicated by the previous experiments.

Results of these studies permit the following conclusions:

1. Antibiotic supplementation significantly affected growth rate from two to 28 weeks when computed on a flock basis: a. Continuous antibiotic supplementation increased only the weight of the male turkeys significantly at 28 weeks of age. b. On a flock basis turkeys that had received an antibiotic-supplemented starting diet for only eight weeks weighed no more than controls at 28 weeks of age. The females weighed essentially the same while the supplemented males weighed significantly less than those that had not been supplemented. c. Levels as low as 2.25 Gm. of an antibiotic per ton of feed were highly effective in increasing weight to the eighth week and in one experiment were as effective as higher levels. d. The removal of antibiotic supplementation during the growing period significantly increased variability from 12 to 28 weeks of age. e. Variability declined with increasing age from four to 28 weeks of age. This decline was significant from 12 to 28 weeks of age. f. Females were significantly more uniform than males from 12 to 28 weeks of age.

2. No significant effect on mortality was observed as a result of antibiotic supplementation.

3. The following effects on efficiency of feed utilization were observed: a. Antibiotic supplementation did not affect efficiency of feed utilization for the first eight weeks. b. Significantly greater efficiency of feed utilization was shown by poults fed a diet that contained meat scrap and fish meal than by poults fed a diet devoid of these ingredients.

Control of Scab in Sheep

An evaluation of the acaricidal properties of aldrin and dieldrin for the control of sheep scab has been made by Fiedler and DeToit (*Onderstepoort J. Vet. Res.*, Nov. 1953, through *Vet. Med.* 49:213, 1954). They indicate that chlorinated hydrocarbon insecticides, like DDT and compounds related to it, have a tendency to remain localized at the point of application so that they do not diffuse along the wool fibers into the new growth of wool. Toxaphene, chlordane, and especially BHC are readily diffusable. Dieldrin and aldrin were found to be even more diffusable than BHC. The conclusions of the investigators are that dieldrin is an extremely potent and quick acting acaricide. Against *Psoroptes communis oris*, it is able to control sheep scab with a single dipping at a concentration of 0.03 per cent of the active ingredient. Its acaricidal action at this strength is comparable to that of gamma BHC at 0.02 per cent. Aldrin, in wettable powder or emulsion form, at a concentration of 0.05 per cent of the active ingredient, must be regarded as being insufficiently effective to eradicate scab by a single treatment.

Antibiotics for Anthrax

W. W. Bailey (*J. Am. Vet. Med. Assoc.* 124:296, 1954) was given an opportunity to test the value of antibiotics against anthrax when this infection occurred in 30 days to six months in 3.37 per cent of the cattle and horses vaccinated with commercial bacterins. Some cases failed to respond to, or relapsed under, penicillin therapy. Terramycin was then used concurrently with penicillin with much better results. Later, Terramycin was used alone with equally good, or better, results. A total of 214 cases was treated—79 with penicillin alone, 73 with penicillin and Terramycin, and 62 with Terramycin alone. Terramycin alone required the least number of days of treatment per animal. Two animals recovered without treatment.

Bailey, on the basis of this experience, believes that Terramycin used alone gives not only the most rapid, but also the best, results in the treatment of inoculation anthrax.

ACTH in Veterinary Practice

According to N. Fearon (*Chem. & Drug.* 161:429, 1954) ACTH (adrenocorticotropin) has now been used in extensive trials in the veterinary field and has been shown to be effective in the treatment of bovine acetonemia (ketosis); pregnancy toxemia in sheep. Ketosis of the dairy cow is recognized to be due to an adrenal deficiency involving the pituitary-adrenocortical system. The anterior-pituitary in cow ketosis may be "overtaxed" and unable to keep up with functional supplies, resulting in a decrease in blood sugar. To stimulate the cortex of the adrenal gland the treatment of choice is ACTH. Up to the present, and with glucose therapy, the purely symptomatic and short-lasting effects, requiring numerous injections, may give only retarded recovery. The fullest cardinal symptoms have been subjected to trial with ACTH, which has also been tried on various breeds.

A single intramuscular (or subcutaneous) injection of 50 units of ACTH has been found to correct primary ketosis of the dairy cow in uncomplicated cases, especially when treatment is prompt. Supplementary doses may be given in stubborn cases. Appetite and milk production appear to improve in two or three days, and to return to normal value within three to twelve days. Nervous symptoms disappear. Parturient laresis in the bovine has also been effectively cured by ACTH, with possibly higher dosage in certain cases; 150-250 units ACTH being recommended). Pregnancy toxemia in ewes in numerous cases has been successfully treated with ACTH in in place of the usual dextrose injection methods. A dose of 25 units is usual.

American Aromatics, Inc.

Essential Oils

Aromatic Chemicals

24 East 21st Street, New York 10, N.Y.

Italian TALC

CHARLES MATHIEU, Inc.
77 RIVER STREET • HOBOKEN, N. J.
Telephone: HOboken 3-4412
New York: BArclay 7-3618

CHEMICALS
PHARMACEUTICAL INDUSTRIAL
OILS • VITAMINS • DRUGS • RAW MATERIALS
Importers Exporters Manufacturers

CAMPHOR USP POWDER DuPont
CAMPHOR USP TABLETS 1/2 & 1 OZ. Tower Brand
QUININE & SALTS Braunschweig
QUINIDINE & SALTS Braunschweig
HYOSCINE HYDROBROMIDE
HYOSCYAMINE Hydrobr. & Sulfate
SUGAR OF MILK USP & Commercial
CHLOROPHYLL Allen's
MENTHOL USP
ATROPINE SULFATE & ALKALOID
THYMOL NF Crystals
EPHEDRINE HYDROCHLORIDE USP
BRUCINE SALTS
ICHTHAMMOL
SULFUR USP PRECIP. English
MAGNESIUM CARBONATE USP Blocks
NAPHTHALENE
HAARLEM OIL

COD LIVER OIL USP
Peder Devold
ALL POTENCIES
•
For Poultry & Animal Feeding:
COD LIVER OIL Devolkod®
USP & Fortified Grades
VITAMIN A & D FEEDING OILS
Devold
•
WHEAT GERM OIL
Peder Devold

SANTONIN and ALKALOIDS of American Manufacture

CHAS. L. HUISKING & CO., INC.
PEDER DEVOLD OIL CO. DIV. SANTONINE CO. OF AMERICA DIV.
215 FOURTH AVENUE, NEW YORK 3, N. Y.
Factory & Warehouse: 45 CLINTON AVENUE, BROOKLYN 5, N. Y.
Telephone: GRamercy 5-3900
Telegrams: HUISKING, WUX, NEW YORK
Cables: HUISKING, NEW YORK
London Agents: Wheeler & Huisking Ltd. 26 Great Tower St., E.C.3
Since 1910

INVESTIGATE EVANS CHEMETICS'
complete private brand manufacturing and custom packaging facilities . . .

- rapid, volume production to your specifications.
- bulk manufacture of liquids, creams, and solids.
- automatic filling and packaging equipment.
- large and experienced research staff.
- rigorous quality control.
- no account too large.
- confidential service.

We specialize in toilet goods, chemical specialties, proprietaries, and cosmetics.

Write or phone

EVANS CHEMETICS, INC.
250 East 43rd Street • New York 17, N. Y.
Phone: MUrray Hill 3-0071

Abreast of the Markets

New Crop, Floral Products

Both the orange and rose crops have suffered somewhat from the late April frost, according to M. G. Couderchet, president, Charabot & Co., who states that, contrary to some rumors, the situation is not as bad as pictured by "some misinformed sources."

The price of orange blossom had gone up 145 francs per kilo this year as compared to 135 francs per kilo in 1953. The crop is about 70 to 75 per cent of that of last year.

The rose crop began on May 5, with the price paid for the flower to the growers being about 220 francs per kilo as compared to 200 francs for last year. This year's crop is expected to be approximately 70 per cent of that of last year, or 500 tons in comparison with 710 tons in 1952.

Brazilian Menthol Up

Brazilian menthol spot prices continued to advance last month and were being quoted from $6.35 to $6.50 a pound. The Japanese material, although still high at $12 a pound, had declined from its previous figure of $14.

Essential Oils From Haiti

Exports of essential oils for the fiscal year, October 1, 1952, to September 30, 1953, declined 27.6 per cent by volume and approximately 50 per cent by value, from the preceding year, according to *Foreign Commerce Weekly*.

A tabulation of the individual essential oil exports for 1952-53 is included below. (1 gourde = US$0.20).

Year and oil 1952-53	*Kilograms*	*Gourdes*
Amyris	24,770	274,034
Neroli	17	11,875
Sweetbasil	39	11,275
Lemongrass	32,212	315,104
Lime	15,347	860,349
Petitgrain	2,879	73,059
Vetivert	9,670	1,317,883
Others	.....	.....
Total	84,934	2,863,579

Essential Oils Favorable

In most instances the situation in essential oils proved favorable last month. There were a few price variations resulting from difficulties at the origin on the one hand, and subnormal temperatures in this country, on the other hand.

Citronella Oil Firmer

Citronella Oil continued to show a great deal of strength last month, with prices for the Ceylon variety advancing to 85 cents a pound, and for the Java material, to 90 cents a pound. If consumption of the oil continues to increase during the summer months, as is anticipated, the price of the oil will probably rise in a similar pattern.

At the present time, it appears that very little oil is available from the origin, a factor which will add to the already tight supply on the spot market.

Cedarwood Oil Higher

The price of cedarwood oil advanced considerably last month to $1.20 a pound. The chief reason for this climb is that most of the low-priced material has been sold, and there is very little, if any, remaining on the spot market.

Citrus Oils Sluggish

There are ample stocks of citrus oils on the spot market to handle consumer demand; in fact, the supply is larger than normal for this time of the year. The chief reason for the soft state of the citrus market is largely due to the lack of summery weather and the consequent lessening of consumption.

Distilled lime oil declined 35 cents, from $6 to the current $5.65 a pound. Lemon and orange oils remained unchanged.

Botanicals Continue Activity

A number of botanicals showed firm tendencies in June, either as a result of political conditions, as in Guatemala, or problems in harvesting at the origin.

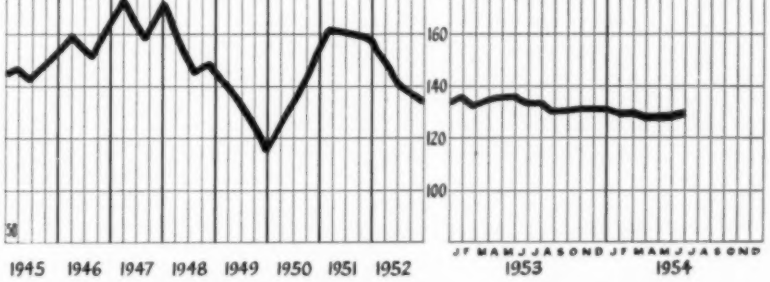
Balsam Peru Advances

Balsam Peru advanced to $1.60 a pound last month, largely as a result of the strife in Guatemala, origin of the balsam. As a result of the civil war, consumers rushed to buy up supplies of the item, thus depleting the market. While the supply situation has been tight for quite some time, it has been aggravated still more by the recent political upheaval. It is believed that the price of balsam Peru will advance further before leveling off.

Ipecac Root Higher

Ipecac root, owing to a shortage in supply, advanced to $7.25 a pound last month, and is expected to remain in a tight position for a long time to come.

50 RAW MATERIALS—WEIGHTED PRICE INDEX. 1926 – 100.



The price index of fifty commodities for June advanced from 128.4 to 129.0.

have you tried

AMERCHOL®

LANOLIN CHOLESTEROLS in their most active form.

The Amerchols are safe, non-ionic, natural EMULSIFIERS, PENETRANTS and EMOLLIENTS. They will help you achieve superior cosmetic and pharmaceutical formulations by markedly improving stability, texture, appearance and effectiveness.

An Amerchol such as the multi-sterol, liquid Amerchol L-101 enhances softening, penetrating and spreading activity while holding desirable moisture to the skin. The surface active Amerchols function at the interface in oil-in-water emulsions to bring about these unique effects.

The Amerchols are ideal ointment bases since they are stable, induce rapid drug release, and promote optimum healing rates.

WE KNOW OF NO CASE OF AN ALLERGY DUE TO AN AMERCHOL.

AMERICAN CHOLESTEROL PRODUCTS INC. AMERCHOL

AMERICAN CHOLESTEROL PRODUCTS
INCORPORATED
MILLTOWN • NEW JERSEY

Write on your business letterhead for technical literature and suggested formulas.

Odor and Olfaction—Biochemical Approaches

(Continued from page 41)

twisted or forced by the enzyme to succumb to chemical action and so to pass the next metabolic stage. A non-metabolite of similar structure may usurp the available enzyme surface, thereby holding off the metabolite and blocking the metabolic process. The essential features of structural similarity, involved in attachment to an enzyme surface, appear to be centered in a small number of atoms spaced at strategic distances.[10] Welsh[11] found the activity of acetylcholine derivatives to be correlated with such distances.

Enzyme Activity

Enzymes have been utilized to promote desired chemical reactions at least since the first bread was leavened in prehistoric times. In 1926 Sumner[12] first obtained an enzyme, urease, in pure, crystalline condition, and many other enzymes have since been isolated and studied, but the theory of enzyme activity, and that of catalyst activity in general, have made great strides in the past few years.

Catalysts

Farkas,[13] in 1951, pointed out that until very recently catalysts have been considered to be nonspecific adsorbents which act as a jig to hold the reactants in a favorable geometric position for reaction. He cites recent work which further defines how the reactants are held, and how their activity is increased. The catalysts have surfaces capable of donating electrons at certain points and of accepting electrons at other points, all in a definite pattern. The reactant must have a complementary structure in order to be held by the catalyst, and the electron shifts which occur when it is held draw other electrons into more active positions. Thus the transition metals have partly empty D-shells which attract electrons and enable them to function as hydrogenation catalysts. Many oxides are semiconductors because of the presence of lattice defects, thus facilitating transfer of electrons between reactants and catalyst.

Dipole Catalysts

Swain and Brown[14] have demonstrated how two oppositely charged groups, properly spaced in a single molecule, can exert a combined catalytic action of high effectiveness. They studied the mutarotation of tetramethylglucose in benzene solution. The reaction involved hydrolysis of a hemiacetal link, which required simultaneous action of a negative group upon the hydrogen and a positive group upon the oxygen of the link. A mixture of phenol and pyridine will promote this reaction, each of these molecules supplying one of the necessary groups. In this case, however, reaction involves collision of three molecules. If the two necessary groups can be supplied, properly spaced, by one mole-

cule, only two molecules will need to collide and the reaction rate should be higher. This specification was met by 2-hydroxypyridine, which gave 50 times the reaction rate of the mixture of phenol and pyridine at the same concentration. Use of 3- or 4- hydroxypyridine gave only 0.1 per cent the rate produced by 2-hydroxypyridine, showing the importance of correct spacing.

Swain and Brown found a number of other compounds effective as catalysts in the same reaction, and concluded that "the ideal catalyst for any polar displacement reaction is one which can complex with the substrate without serious steric limitations and which has polar functional groups so arranged that it has a pattern of polarities closely opposite to that of the reacting substrate in the desired transition state. Thus it can present a center of opposite polarity simultaneously to each of the unstable polar centers." They also remarked upon the close resemblance of these polyfunctional catalysts to enzymes; they considered it likely that enzymes rely heavily on the same technique of polyfunctional catalysts.

Imitation Enzymes

Anan[15] has prepared metal complex salts of salicylaldehyde-ethylenediamine which had pseudo-enzymic activity. When these metal chelates were dissolved in pyridine and tested against control solutions of simple metal salts, he found peroxidase, catalase, and ascorbic acid oxidase activity in some of the chelates. Calvin[16] noted that chelate compounds are unique in steric, entropy and resonance effects; all these features are significant in our study of enzymes and of odorants.

Nature of Enzymes

Giessman[17] considered that all enzyme actions involved the same fundamental property of the protein molecule, with the prosthetic group in an auxiliary, not an independent, role. A protein has a long system of peptide linkages, whose H-bridges can donate or accept protons, thereby mediating the transfer of electrons from substrate to prosthetic group.

Leach and Lindley[18] studied enzymic molecules by comparing their amino acid composition with that of non-enzymic proteins, and concluded that enzymes are characterized by many carboxyl-hydroxyl interchain H-bonds, forming a highly resonating network.

Holley[19] believes that steric inhibition of amide resonance may increase the activity of the amide, and cites the easily hydrolyzed amide link in benzylpenicillin as an example. He postulates that an enzyme may facilitate hydrolysis of a substrate amide group by distorting it into a nonplanar and therefore reactive configuration. Thus tryspin promotes hydrolysis of amides; H-bonds between oxygen atoms of the trypsin and the amide hydrogens may draw the latter out of the amide plane, thus lowering resonance and increasing activity.

Sulfhydryl Groups

The sulfhydryl groups found to be of such importance in visual processes are also vital parts of many enzymes.

have you tried

MODULAN®

T. M.

The MODIFIED LANOLIN with new properties.

Modulan is chemically treated lanolin containing all the constituents of lanolin modified by a unique treatment to impart NEW and VALUABLE PROPERTIES.

Modulan forms clear solutions even in cold mineral oil and deposits hydrophobic, emollient films on skin and hair. These desirable protective films are waxy rather than tacky and are very pleasant to the touch.

Modulan is extremely hydrophobic – does not form greasy emulsions and is practically odorless. CLINICAL INVESTIGATIONS HAVE INDICATED THAT IT IS HYPO-ALLERGENIC.

Because of its solubility in mineral oil and its outstanding compatibility with oil-in-water emulsions and with soaps and shampoos, Modulan is particularly recommended for use in creams, lotions, baby products, hair preparations, make-up, and ointments.

AMERICAN CHOLESTEROL PRODUCTS INCORPORATED

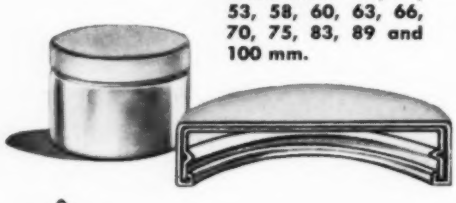
MILLTOWN • NEW JERSEY

Write on your business letterhead for technical literature and suggested formulas.

MeritSEAL

• MeritSEAL exceeds all competitive products in sales volume because it also exceeds in performance and beauty. A "perfect seal" comes literally true when you spin attractive MeritSEAL onto your jar.

NOW AVAILABLE IN THE FOLLOWING NEW SIZES:
38, 40 and 45 mm.
Other sizes—48, 51, 53, 58, 60, 63, 66, 70, 75, 83, 89 and 100 mm.



CROWN CORK SPECIALTY CORP.
DIVISION OF Crown Cork and Seal Co.
St. Louis 15, Missouri

Salts of heavy metals will poison or inactivate such enzymes, and this poisoning is prevented by sulfhydryl compound. The protective action of British antilewisite is based on this effect; lewisite contains an arsenic atom which forms a rather stable ring with sulfhydryl groups, thus interfering with life processes which depend on sulfhydryl, but B. A. L. contains two sulfhydryl groups which form a very stable ring with the arsenic of the lewisite, thus protecting the sulfhydryls of the living tissues.[20]

Lynen and coworkers[21] found that an acetylmercapto group is primarily responsible for the physiological properties of acetyl coenzyme A. Stern and his associates[22] reported that the synthesis of citrate from oxalacetate in presence of acetyl coenzyme A and a crystalline condensing enzyme, is accompanied by appearance of stoichiometric amounts of —SH groups. The acyl-mercaptide bond is an energy-rich bond, with free energy of 12,400 cal.

We can conclude that factors determining physiological reactivity of chemical compounds will include ability to donate or accept electrons or to form H-bonds, and the spacing of atoms able to exert such effects. Presence of an —SH group in a compound, or ability to react with —SH, will have an influence on physiological effect. Another important consideration is the steric arrangement of the active groups.

Steric Effects

Brown recently called attention[23] to the tremendous importance of steric effects in determining the chemical activity of a substance. Polar effects have received much more attention in the past, and they may alter reactivity by factors up to 100, but the neglected steric effects may change reaction rate by factors as large as a million. Brown described three types of strains, designated as F, B and I. F-strains are the type classically referred to as steric hindrance. B-strains are observed in highly branched compounds, and when B-strains are smaller in a transition state than in the original reactant, the strain will favor the reaction. I-strains (inside strains) are largely due to bond angle distortions in ring compounds, and also can favor reaction.

New Atom Model

Robinson described,[24] at a meeting of the Faraday Society last September, a new atomic model designed to give true pictures of bond angles and of steric effects. In this model the atoms are joined by a combination of link and rubber collar allowing the valency bond to be distorted a few degrees from normal when strained, but holding the bond at its normal angle when not under strain. This model allows strained molecules to be built, and an estimate of distortion to be made. From a model of a cellulose molecule, Robinson drew various conclusions as to flexibility in various directions, as influenced by the steric resistance of the hydroxyl groups. With a model of Benzopurpurin 4B, it was

(Continued on page 132)

Readers' Questions

Permanent Wave Preparations: We are interested in a good formula for an ammonia cream and a lotion for machine permanent waving. Havana.

I think a preparation such as the following will meet your need for an ammoniacal solution:

Ammonium hydroxide (0.880)	**8.0**	**parts**
Ammonium carbonate	**4.0**	"
Potassium carbonate	**3.5**	"
Borax	**1.5**	"
Water	**83.0**	"

A cream can be made along the following lines:

Lanolin, anhydrous	**15.0**	**parts**
Lanolin, anhydrous	**15.0**	**parts**
Wool wax alcohols	**3.5**	"
Petroleum jelly, long fibre	**10.00**	"
Ammonium carbonate	**8.0**	"
Potassium carbonate	**2.0**	"
Borax	**3.0**	"
Sodium sulphite	**5.0**	"
Water	**53.5**	"

Antihistamine Ointments: Will you please send me formulas for smooth, emulsion type, ointments containing an antihistamine. JAMAICA.

Tripelennamine (Pyribenzamine) hydrochloride	**0.6 Gm.**
Washable ointment base, to make	**30.0 Gm.**

The washable base required in the above is made from:

Cetyl alcohol	**9.2 Gm.**
Stearyl alcohol	**9.2 Gm.**
Sodium lauryl sulfate	**1.5 Gm.**
Propylene glycol	**10.0 Gm.**
White petrolatum	**30.0 Gm.**
Water, distilled	**100.0 cc.**

Another antihistamine cream given in this source is as follows:

Tripelennamine hydrochloride	**0.60 Gm.**
Glyceryl monostearate	**4.50 Gm.**
Cetyl alcohol	**1.50 Gm.**
Methyl cellulose	**0.30 Gm.**
Sorbitan monooleate (Span 80)	**0.09 Gm.**
Polyoxyethylene sorbitan monooleate (Tween 80)	**0.09 Gm.**
Water, distilled, to make	**30.00 Gm.**

Grongoire

Grongoire

FOR

EXPERT

PRIVATE LABEL

COSMETIC MANUFACTURING

Assembly

Shipping

Creating

Packing

Storage

Grongoire

• NO ACCOUNT TOO LARGE OR SMALL •

Grongoire 127 Green St., Brooklyn 22, N. Y.

WRITE DEP'T. T

The Acid Mantle of the Skin

(*Continued from page 36*)

on the acid side for all but one tester. We included the pH readings on a face of a young girl who had acne. However, we do not claim that the acne results are in any way significant or typical.

These preliminary tests clearly showed that measurements of the skin pH give only limited information because they determine only pH without buffer activity. It was therefore decided to study the reaction of the skin when it is put under stress of different agents, such as soap or cleansing creams.

When a face is washed with soap, alkaline conditions are created on the skin. Briefly, a soap wash does a number of things:

1. It removes the dirt and soil.
2. It removes a part of the skin fat.
3. It neutralizes the acids in the acid mantle.
4. It uses up some of the buffer capacity of the acid mantle as well as that of the skin itself if there is a prolonged contact between soap and skin.
5. It may cause swelling of the skin on prolonged contact.

Most of these reactions are completely reversed by sufficient rinsing. As a matter of fact, the importance of thorough rinsing cannot be over-emphasized for finishing up any washing operation.

We realized the importance of good rinsing when we checked the pH values near the ears. Quite often these regions showed alkaline reaction because the testers did not rinse these regions sufficiently for fear that their hair would get wet. In the following graphs, the values plotted are the average of five values obtained from various regions of the face. The horizontal axis represents time in minutes. Readings were taken at intervals of 15 minutes. Figure 2 shows the readings of a well-rinsed face. This tester also happens to have a normal buffer capacity.

Fig. 2

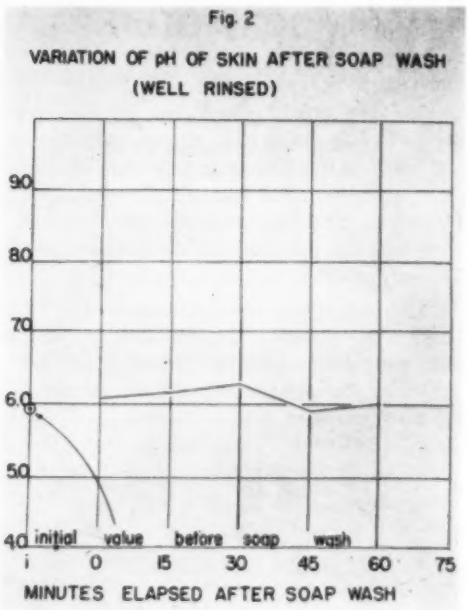


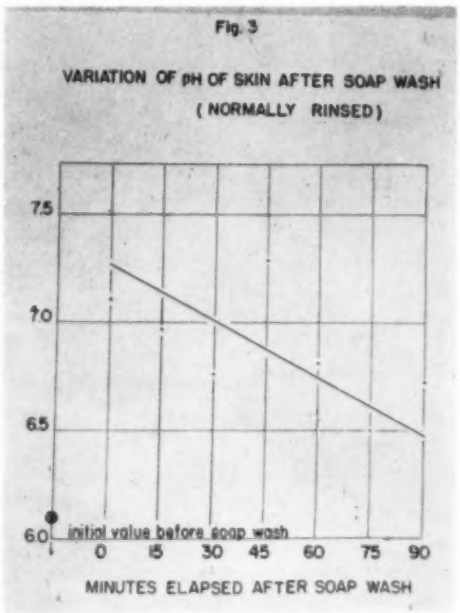
TABLE II

pH Readings of Various Parts of the Face

Tester	A	B	C	D	E	F	G	H	I	J	K	L
120—GR	4.7	5.9	5.9	6.1	6.2	5.5	5.7	6.2	6.1	5.6	5.4	5.9
115—EH	4.7	4.7	5.1	5.1	5.2	4.7	5.1	5.1	4.8	5.1	5.3	4.9
126—AM	6.4	6.3	6.7	6.3	6.1	5.9	6.3	6.0	5.9	5.9	6.1	6.0
121—MB	6.1	6.1	6.4	5.8	6.0	6.2	5.6	5.3	6.4	6.1	6.0	6.0
122—EE	6.3	6.4	6.1	6.4	6.3	6.3	6.6	6.4	6.3	6.5	6.3	6.1
119—IA	6.2	6.35	6.3	6.75	5.9	6.1	6.6	6.1	6.3	6.1	6.3	5.8
118—EE	5.9	6.1	6.1	6.3	6.2	5.8	6.55	6.2	5.9	6.45	6.2	5.7
117—JB	6.3	5.9	5.8	5.8	6.0	6.0	6.1	6.0	6.1	5.9	6.0	6.0
116a—RB*	6.9	7.0	6.9	7.7	6.9	7.0	7.6	6.8	7.1	7.0	6.8	6.8
116—MW	6.2	6.3	6.1	6.3	6.5	6.15	6.3	6.4	6.6	6.5	6.5	6.3
115—MB	6.0	6.5	6.5	6.7	6.5	6.5	6.3	6.3	6.2	6.3	6.3	6.2
114—AE	6.3	6.3	6.55	6.65	6.25	6.3	6.6	6.32	6.3	6.25	6.4	6.2
113—RH	4.2	5.3	5.3	5.5	5.3	5.1	5.4	5.5	5.2	5.6	5.3	4.8
112—RH	6.1	5.6	5.2	6.2	5.0	5.6	6.65	6.0	5.4	5.8	5.0	5.3
111—CM	6.0	5.6	5.8	6.3	6.6	5.6	6.0	5.5	5.5	5.8	5.4	5.3
110—GF	5.7	5.6	5.7	6.0	5.9	5.4	6.1	5.4	5.9	5.8	5.8	5.3
109—MH	—	5.3	5.9	6.0	5.4	5.55	5.55	5.9	5.5	5.9	5.1	—
108—RC	5.6	5.2	5.6	6.7	5.7	5.5	6.3	5.6	5.1	5.8	5.2	5.1
107—MC	6.7	6.6	6.7	6.7	5.9	6.3	6.7	5.8	5.9	6.4	6.5	5.6
105—MB**	7.2	7.2	4.1	5.4	7.5	7.3	8.1	7.4	7.7	—	7.8	7.—
125—JS	6.15	5.9	6.2	5.65	5.8	6.2	5.8	6.0	6.2	5.85	5.85	5.75
124—OW	5.8	6.7	5.6	5.3	5.4	5.9	5.5	5.4	5.7	5.7	5.2	5.2

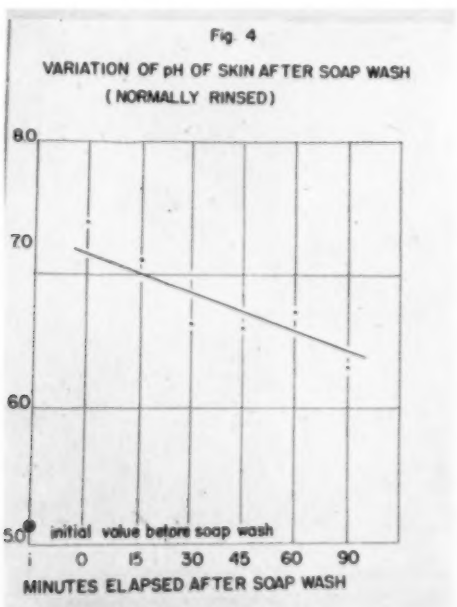
*Inflamed **Acne

Figures 3 and 4 represent normally rinsed, i.e., not quite completely rinsed, faces. We note that although the pH after the soap wash and after a normal rinse is towards alkaline values, the skin buffer actively pulls



the pH down to almost normal within 90 minutes.

Cleansing with soap is an almost universal practice. However, there are some women who have trouble using soap because soap cleaning is accompanied with some degreasing of the skin. These women prefer cleansing cream for their facial cleaning. Two types of cream are available, one with an alkaline pH and another with an acid pH. In order to study the variations in pH of the skin when a cleansing cream is applied to the skin, the following procedure was used. One and one-



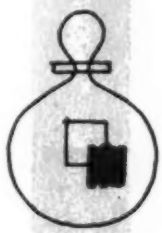
FOR THE DRUG AND COSMETIC INDUSTRY

ULTRAVIOLET ABSORBERS FOR SUN-TAN PREPARATIONS

hydroquinone diethyl ether
hydroquinone dimethyl ether

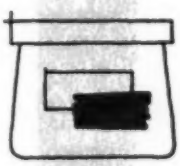
PERFUME AROMATICS

hydroquinone dimethyl ether
Compound 77-B



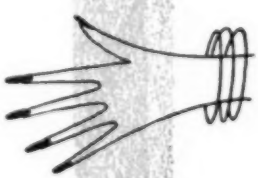
STABILIZERS

Tenox BHA for such oils and waxes as paraffin, stearic acid, mineral oil and lanolin



FINGER NAIL POLISH

film former
cellulose acetate
plasticizers
dimethyl phthalate
diethyl phthalate
solvents
acetone
ethyl acetate



For samples of these Eastman industrial chemicals, call or write to our nearest sales office.

Eastman CHEMICAL PRODUCTS, INC.
KINGSPORT, TENNESSEE
a subsidiary of Eastman Kodak Company

SALES OFFICES: Eastman Chemical Products, Inc., Kingsport, Tennessee; New York—260 Madison Ave.; Framingham, Mass.—65 Concord St.; Cleveland—Terminal Tower Bldg.; Cincinnati—Carew Tower; Chicago—360 N. Michigan Ave.; St. Louis—Continental Bldg.; Houston—412 Main St. **West Coast: Wilson Meyer Co.,** San Francisco—333 Montgomery St.; Los Angeles—4800 District Blvd.; Portland—520 S. W. Sixth Ave.; Seattle—821 Second Ave.

half grams of cleansing cream were applied to one-half of the face as uniformly as possible and then tissued off thoroughly.

Figure 5 shows pH changes when a cream of pH 8.35 is applied to a skin of good buffer capacity. Average

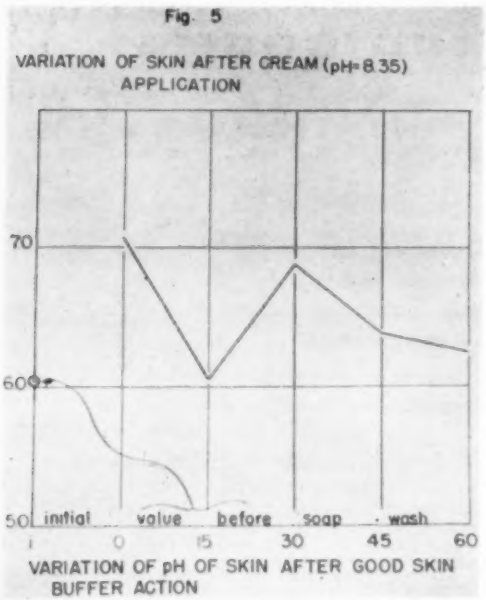


Fig. 5
VARIATION OF SKIN AFTER CREAM (pH=8.35) APPLICATION
70
60
50
initial value before soap wash
i 0 15 30 45 60
VARIATION OF pH OF SKIN AFTER GOOD SKIN BUFFER ACTION

buffer capacity gives a curve of a definite but slower downward trend. This is shown in Figure 6. A skin with poor buffer capacity is shown in Figure 7. This tester could not only not use soap unless thoroughly rinsed but could not use this type of cream although she would have benefited by the protective fat and oil film furnished by the cream.

Now let us look at the pH curve of Figure 8 when a cleansing cream of pH 5.3 is applied to the skin of the tester who could not use the cleansing cream of pH 8.35.

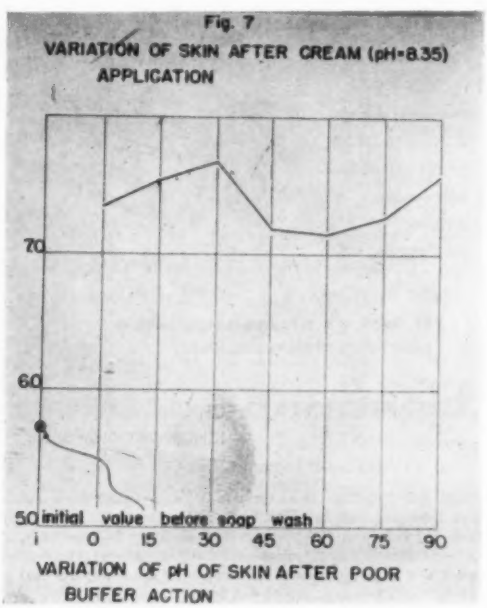


Fig. 7
VARIATION OF SKIN AFTER CREAM (pH=8.35) APPLICATION
70
60
50
initial value before soap wash
i 0 15 30 45 60 75 90
VARIATION OF pH OF SKIN AFTER POOR BUFFER ACTION

Here we notice that the pH values after application of acid cleansing cream are practically the same as that of the untreated skin.

Many cosmetics are buffered for stability. Therefore, we thought it would be interesting to study acid

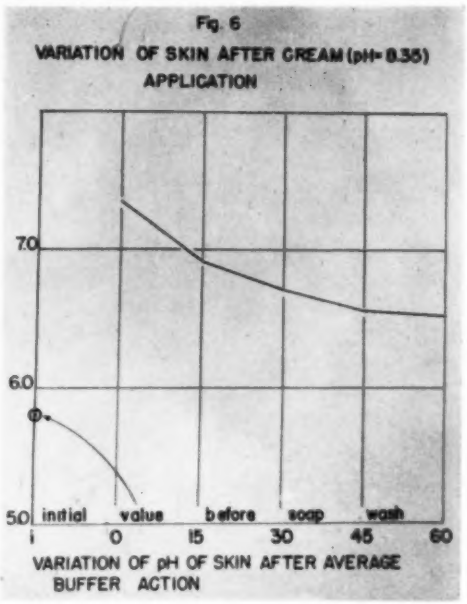


Fig. 6
VARIATION OF SKIN AFTER CREAM (pH=8.35) APPLICATION
70
60
50
initial value before soap wash
i 0 15 30 45 60
VARIATION OF pH OF SKIN AFTER AVERAGE BUFFER ACTION

creams buffered to various degrees. From the various test runs we selected one weakly and one strongly buffered cream, the results of which are presented below. The buffer capacities were in the ratio of 1:12. These creams were tested on skin washed with soap and then normally rinsed. Since it is difficult to wash and rinse two faces more or less alike or treat the same face alike in consecutive experiments, the cream with a pH of 8.3 was applied to one-half of the face and the cream with pH of 5.3 was applied to the other half of the

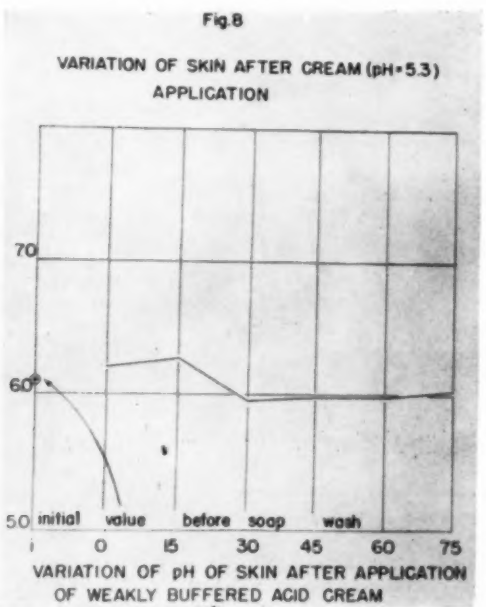
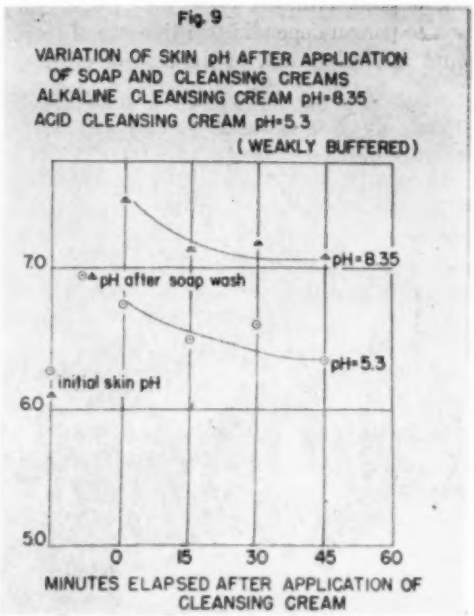


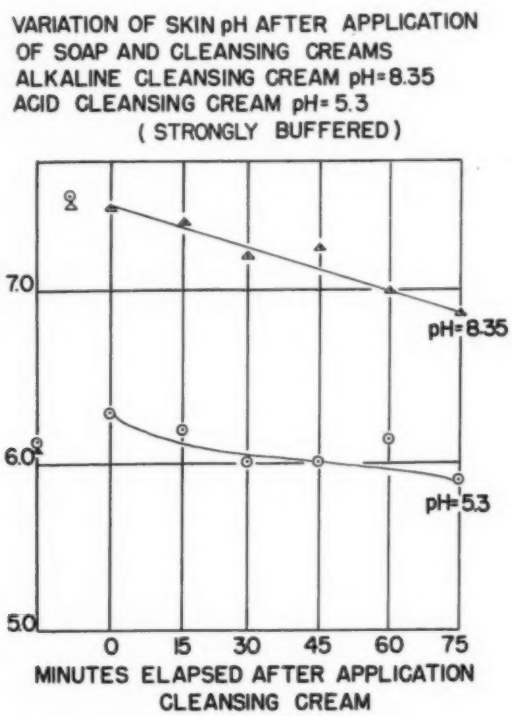
Fig.8
VARIATION OF SKIN AFTER CREAM (pH=5.3) APPLICATION
70
60
50
initial value before soap wash
i 0 15 30 45 60 75
VARIATION OF pH OF SKIN AFTER APPLICATION OF WEAKLY BUFFERED ACID CREAM

Fig. 9



face. Figure 9 shows the behavior of a weakly buffered acid cream and Figure 10 shows the same for an acid cream with 12 times the buffer capacity although its pH was identical with that of the weakly buffered

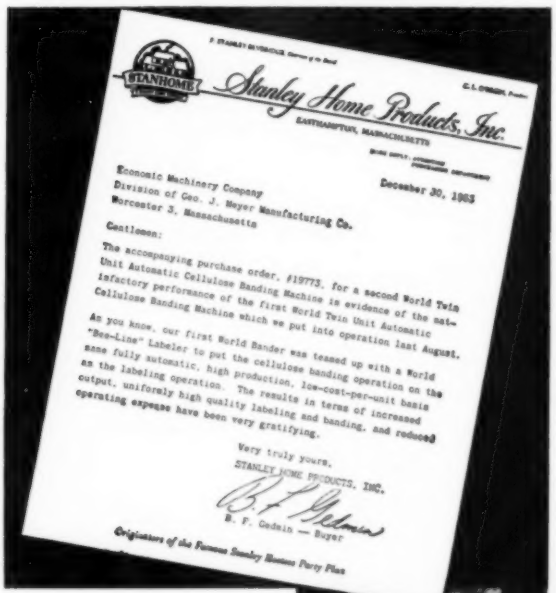
Fig. 10



cream. It probably is not advisable to buffer too strongly since all that seems necessary is to give help to the skin to return to its normal pH.

It is, of course, understood, that the stress under which the skin is placed in the case of soap and cream

Read Why They REPEAT ORDERED THE WORLD AUTOMATIC CELLULOSE BANDING MACHINE


STANHOME
Stanley Home Products, Inc.
EASTHAMPTON, MASSACHUSETTS
December 30, 1953
Economic Machinery Company
Division of Geo. J. Meyer Manufacturing Co.
Worcester 3, Massachusetts
Gentlemen:
The accompanying purchase order, #19773, for a second World Twin Unit Automatic Cellulose Banding Machine is evidence of the satisfactory performance of the first World Twin Unit Automatic Cellulose Banding Machine which we put into operation last August.
As you know, our first World Bander was teamed up with a World "Bee-Line" Labeler to put the cellulose banding operation on the same fully automatic, high production, low-cost-per-unit basis as the labeling operation. The results in terms of increased output, uniformly high quality labeling and banding, and reduced operating expense have been very gratifying.
Very truly yours,
STANLEY HOME PRODUCTS, INC.
B. F. Godwin — Buyer
Originators of the Famous Stanley Home Party Plan

"Increased output"—"uniformly high quality" — "reduced operating expense"—"the same fully automatic, high production, low-cost-per-unit banding as labeling": that's the story on the World Bander in its users' own words.

The World Automatic Cellulose Banding Machine has the versatility and the capacity to fit right into the bottling line. One more slow, costly, laborious hand operation can now become a thing of the past.

World Banders apply plain bands of various diameter, printed bands and precisely spotted bands. They are available for 75, 150 or 225 containers per minute. For cost and delivery estimates write

The World Twin Unit Automatic Cellulose Banding Machine in operation at Stanley Home Products, Inc.

This World Model 135 Automatic Bee-Line Labeler delivers clean, smooth, precisely labeled containers to the World Bander. Full automatic quality and quantity labeling and banding is the result.

Quick change-over to the various container shapes and sizes is readily effected on World Banders as well as Labelers.

WORLD LABELERS

ECONOMIC MACHINERY COMPANY
58 FREMONT STREET WORCESTER 3, MASSACHUSETTS
Division of GEO. J. MEYER MANUFACTURING COMPANY
CUDAHY, WISCONSIN, U.S.A.

KOMMON/ SCENTS!

The world's newspaper readers must be thrilled at the report of the newest archaeological discovery in Egypt. If it's not a thrill, at least it's a relief from the Army-McCarthy hearings to learn that earlier big shots were buried by morticians instead of politicians.

• • •

The subject of Egyptian potentates of antiquity always is fascinating. In this day of housing shortages for the living it's provocative to hear about an age when even the dead had a roof over their heads.

• • •

Biggest difficulty for most of us, of course, is pronouncing the names of the Nile's earlier rulers. In this respect, the Senate sub-committee hearings are much more satisfactory. Anybody who read words on a back fence can understand the language in the monitored telephone conversations.

• • •

Sobering thought that comes out of the Egyptian reports is that "this too shall pass." The one invariable law of nature seems to be change. With exceptions persisting, of course, this law does not seem to apply to demanding landlords.

• • •

It is doubtful if there was ever a child who didn't want to go to sea, making Egypt one of the chief ports of call. Consider the irony, then, of that unhappy King Fuad: Compelled to move to such monotonous places as the French and Italian Rivieras, uncertain Monte Carlo and the unsettling atmosphere of Paris with only wine, women and song.

• • •

When we were kids the big magazine supplements featured Kig Tut. Who'd have dreamed we'd reach a day where a new generation of youngster dieting on electrons and atoms would react to new discoveries with a blaze: "Tut-Tut."

• • •

But the appreciative Cosmetic Industry knows the new discoveries for what they really are: Pickled ancestors instead of soused relatives.

George Fiedler

KELTON

Cosmetic Company

230 West 17th Street New York 11, N. Y.

Private Label Manufacturers Exclusively

Covered by Product Liability Insurance

is not a predetermined value and would vary from person to person depending, in the case of soap, on the amount of rinsing and, in the case of creams, on the amount of cream left after wiping. In the course of our investigations we have used a variety of experimental arrangements in order to study the skin while under a fixed alkaline stress. A simple satisfactory procedure by Burckhardt[26] determines repeatedly the time it takes the skin to neutralize a fixed amount of alkali or acid. In order to block out the influence of the carbon dioxide of the air or any other reactive chemical, the filter paper which holds the test solution is covered by a glass block, in size a one inch cube.

Fig. 11

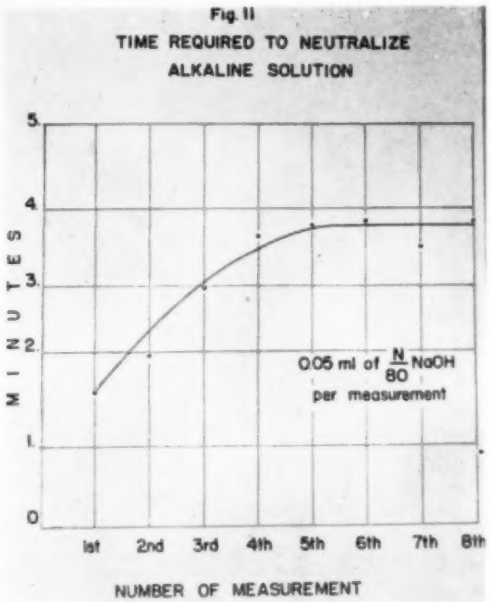
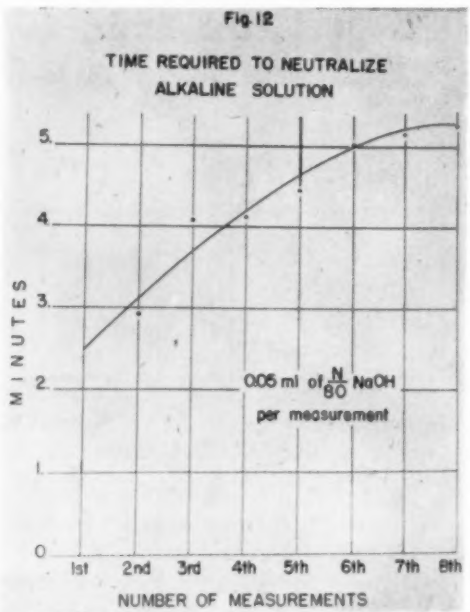


Figure 11 presents in graph form the results of an experiment where equal and consecutive amounts of

Fig. 12



alkaline solutions are brought in contact with skin and the times for neutralization are determined.

The free fatty acid neutralizes the alkali very rapidly. After they are used up the buffer capacity of the acid mantle gives slower but rising time intervals before the test papers are neutralized. As the buffers in the surface film are used up, the time intervals for neutralization become still longer and finally remain constant. When this occurs we are using the amphoteric keratin of the epidermis as buffer. The quicker the fixed values are reached the smaller the protection offered by the acid mantle. Figure 12 is an example.

The acid mantle of the skin is the first line of the body's defense against external influences and it behooves the cosmetic chemist to formulate cosmetics to help this important skin barrier in its function. However, it should be remembered that mere acidity is not enough, buffer capacity is much more important. It is not uncommon to find a skin of low pH but with poor buffer capacity, and then again, a skin of relatively high pH but with strong buffer capacity.

Contrary to Marchionini's thought, acidity alone does not hold back bacterial and fungus infections unless the acidity and the buffer capacity of the acid mantle is based on certain types of acids usually associated with the so-called perspiration acids.

Finally, soap is a good cleanser for most skins provided that the soap wash is following by a thorough rinse.

BIBLIOGRAPHY

1. Huess, E.: Monatsh. Prakt. Derm. 14. 343 (1892).
2. Hilfer, H.: Drug & Cosmetic Ind. 74, 194, (1954). Lubowe, I. I.: Drug & Allied Ind., March 19, (1953). Peck, S. M.: Proceed. of Sc. Sect. T.G.A. 18, 33, (1952).
3. Sharlitt, H. and Scheer, M.: Arch. of Derm. and Syph. 7, 592 (1923).
4. Memmesheimer, A.: Klinisch. Wochenschr. 3, 2102 (1924).
5. Brill, E.: Arch. f. Derma. 156, 488, (1928).
6. Marchionini, A.: Arch f. Derma. 158, 290 (1929).
7. Lustig, B. and Perutz, A.: Arch. f. Derma. 163, 18, (1931).
8. Levin, O. and Silvers, S.: Arch. of Derma. and Syph. 25, 825 (1932).
9. Peck, S. M. and Rosenfeld, H.: J. Invest. Dermatol. 1, 237, (1938).
10. Koch, F.: Klinisch. Wochenschr. 18, 889, (1939).
11. Schmidt, P. W.: Ztrbl. f. Haut. u. Geschlechtskr. 62, 11, (1939).
12. Klauder, J. V. and Gross, E. R.: Arch. of Derm. and Syph. 63, 1, (1951).
13. Anderson, D. S.: Brit. J. of Dermatology, Aug.-Sept., 283, (1951).
14. Jacobi, O.: Hautarst 2, 3, (1951).
15. Schmid, M.: Dermatologica 104, 367, (1952).
16. Peck, S. M.: Rosenfeld, H., Leifer, W., Bierman, W.: Arch. Dermat. and Syph. 39, 126 (1939).
17. Szakall, A.: Fette u. Seifen 53, 171, (1951). Szakall, A. and Neuhaus, H.: Fette u. Seifen 53, 284, (1951). Neuhaus, H.: Fette u. Seifen 53, 552, (1951). Burckhardt, W.: Arch. f. Derma. 173, 155 (1935). Koch, F.: Loc. Cit. Rogge, R.: Dissertation, Cologne (1938).
18. Henggeler, K.: Dissertation, Zurich (1938). Vermeer, D. J. H., Jong, J. C., Lenstra, J. B.: Dermatologica 103, 1, (1951). Piper, H. G.: Arch. f. Derm. 183, 591, (1943). Schulze, W.: Arch. f. Derm. 185, 159, (1943).
19. Jacobi, O.: Derm. Wochenschr. 115, 733, (1942). Rothman, S. T. and Sullivan, M.: J. Invest. Derm. 13, 319, (1949). Rothman, S. T., Smiljanic and Murphy, J.: J. Invest. Derm. 13, 317,G (1949). Vermeer, D. J. H., Jong, J. C., Lenstra, J. B.: Loc. Cit.
20. Schuppli, R.: Dermatologica 98, 295, (1949). Schmidt, P. W.: Loc. Cit. Schmid, M.: Loc. Cit. Burckhardt, W. and Baumle, W.: Dermatologica 102, 294, (1951).
21. Wacek, A.: Dissertation, Zurich (1953).
22. Neuhaus, H.: Loc. Cit.
23. Buettner, K.: J. Appl. Physiol. 6, 229, (1953). Blank, I. H.: J. of Invest. Derm. 71, 259, (1953).
24. Kaufman, H. P., Szakall, A., Budwig, J.: Fette u. Seifen, 53, 436, (1951).
25. Neuhaus, H.: Loc. Cit.
26. Burckhardt, W.: Loc. Cit.

Oral Hygiene

(Continued from page 44)

The glycerine, soap, and water are mixed and warmed to 75° C. The chalk and saccharin are mixed well and poured into the hot glycerine, soap, and water mixture.

To Your Cosmetic Powders

Add "KIND-TO-THE-SKIN" Properties

with Horse Head U.S.P. ZINC OXIDE

Your dollars work two ways when you use Zinc Oxide in your face and body powders . . . because Zinc Oxide imparts *both* cosmetic and pharmaceutical properties:

1. COSMETIC PROPERTIES

High Covering Power
Zinc oxide gives more covering power *per dollar* than any other high covering pigment used in cosmetic powders.

Deodorant
Zinc oxide neutralizes perspiration acids.

Sunburn-ray screen
Zinc oxide is opaque to ultraviolet light.

2. PHARMACEUTICAL PROPERTIES

Zinc oxide is widely used in dermatology in the form of zinc oxide ointment and calamine lotion.

It owes its popularity, according to one recognized authority,* to a combination of at least three qualities: it is non-toxic, protective and mildly astringent.

* *The Dispensatory of the United States of America, 1950 Edition*

HORSE HEAD PRODUCTS

THE NEW JERSEY ZINC COMPANY
Founded 1848
Products Distributed by
The New Jersey Zinc Sales Company
New York · Chicago · Boston
Cleveland · San Francisco · Los Angeles

Then **VEEGUM** can be the answer to your problem. This refined, inorganic physical conditioner has proved a boon to pharmaceutical and cosmetic formulators.

VEEGUM is remarkably versatile. *It suspends, emulsifies, thickens, and is thixotropic.*

IF YOUR PROBLEM IS WITH SUSPENDING, VEEGUM provides complete suspension at lower viscosities than organic gums. It is used and recommended as a suspending agent in calamine preparations and suspensions of pigments, deodorants, and sulphur compounds.

IF YOU NEED AN EMULSION STABILIZER, you'll discover that less than 1% **VEEGUM** will permanently stabilize many types of emulsions containing various oils, fats and waxes over a wide range of pH. As an emulsifying agent in hand lotions, shaving preparations, dental creams, deodorants, hair preparations, pigmented make-up, sun-tan lotion and pharmaceutical ointments, **VEEGUM** has no equal.

WHERE VISCOSITY CONTROL CAUSES YOU TROUBLE, VEEGUM eliminates the short-comings of commonly used thickeners. It thickens with heat to maintain product consistency at higher than normal temperatures. Thixotropy gives it the suspending ability of a gel through long periods of storage. Quick dispersion of **VEEGUM** is obtained in either hot or cold water. Here is the ideal viscosifier for shampoos, toothpastes and cosmetic creams, lotions and suspensions.

VEEGUM offers these opportunities for you to keep your formulations from running wild . . . to enhance and improve your product. If you haven't tried this white, opaque, non-tacky and non-gelatinous physical conditioner, ask us for full information today. **VEEGUM** is, of course, non-toxic and non-irritating.

R. T. VANDERBILT CO.
SPECIALTIES DEPARTMENT
230 PARK AVENUE, NEW YORK 17, N. Y.

SEND FOR THE VEEGUM STORY

Please send ☐ VEEGUM Bulletin J53
☐ sample of VEEGUM.
☐ information on using VEEGUM for:

_____
(state application)

NAME_____

POSITION_____
(Please attach to, or write on, your company letterhead)

Mechanical agitation assures uniform mixing. Flavor is added when paste has cooled to room temperature.

Anise flavors are used extensively for soap toothpastes as they possess a very definite ability to cover up the soap taste. Methyl Salycilate helps in this capacity.

English Toothpaste No. 3

Calcium Sulfate	678.0	Parts by Weight
Tricalcium Phosphate	286.0	" " "
Tragacanth	50.4	" " "
Lorol	37.0	" " "
Citric Acid	2.8	" " "
Cream of Tartar	2.8	" " "
Sodium Saccharine	1.0	" " "
Glycerine	447.0	" " "
Water	475.4	" " "
Flavor	20.4	" " "

This paste also is made by the hot process. Before going further into the formulation of toothpastes, it may be well to describe this method.

Toothpaste No. 4

1	Calcium Sulfate	35.750	Parts by Weight
	Dicalcium Phosphate	15.620	" " "
	Sodium Lauryl Sulfoacetate	3.000	" " "
	Sodium Alginate	1.600	" " "
2	Glycerine	10.000	" " "
	Sorbo (commercial Sorbitol solution)	14.250	" " "
	Sodium Saccharine	.125	" " "
	Water	18.744	" " "
3	Flavor	.988	" " "

PROCEDURE HOT PROCESS: The ingredients in Number 2 comprise what is called the elixir and, henceforth, in formulas made by the hot process will be called the elixir. Number 1 is the powder phase and Number 3, of course, the flavor.

Number 2 is heated to 90° C., while at the same time Number 1 is being warmed in a separate container equipped with a mechanical agitator. The elixir is poured into the powders with continuous agitation and stirred until it reaches room temperature. The paste is brought to weight with water, and the flavor is added. It is advisable to allow the paste to stand for 24 hours, then restir for ten minutes just previous to filling.

Toothpaste No. 5

1. *Powders*—	Calcium Sulfate	817.0	Parts by Weight
	Dicalcium Phosphate	400.0	" " "
	Tragacanth	40.0	" " "
	Sodium Saccharine	2.5	" " "
2. *Elixir*—	Water	260.0	" " "
	Sorbo	245.0	" " "
	Glycerine	90.0	" " "
3. *Detergent*—	Sodium Lauryl Sulfate	40.0	" " "
	Glycerine	80.0	" " "
	Flavor	25.5	" " "

This paste may be made by the hot process as previously described, or a slight variation of this method may be used. The elixir is made in the same manner except that a little less than half of the glycerine is set aside, and a slurry is made of the glycerine and sodium lauryl sulfate. After adding the elixir to the powders, the mixture is stirred until well mixed, then the glycerine-detergent slurry is added, and the process is

carried through, as usual, to completion. A great amount of air may be excluded from the paste by using this method.

Toothpaste No. 6

Powders—Aluminum Hydrate	40.000	Parts by	Weight
Titanium Dioxide	1.000	"	"
Sodium Lauryl Sulfoacetate	3.000	"	"
Sodium Saccharine	.125	"	"
Sodium Alginate	1.900	"	"
Elixir —Glycerine	10.000	"	"
Water	18.800	"	"
Sorbo	14.250	"	"
Flavor	1.000	"	"

PROCEDURE: Hot Process.

Very recently several companies have set forth upon great advertising programs promoting the use of ammoniated dentifrices in the prevention of dental caries. This same type of advertising program has also promoted the use of chlorophyll-containing toothpastes designed to relieve offensive breath. It is not the purpose here to argue the pro or con of these dentifrices but merely to aid in their formulation. Following are two very excellent pastes, which may be altered but slightly, to suit the most exacting consumer.

Ammoniated Toothpaste No. 7

Powders—Ammonium Phosphate Dibasic	100.00	Parts by	Weight
Urea	60.00	"	"
Sodium Saccharine	.60	"	"
Tricalcium Phosphate	660.00	"	"
Magnesium Trisilicate	20.00	"	"
Tragacanth	16.00	"	"
Sodium Lauryl Sulfoacetate	60.00	"	"
Elixir —Sorbo	320.00	"	"
Glycerine	224.00	"	"
Water	505.00	"	"
Flavor	33.000	"	"

PROCEDURE: Hot Process.

Chlorophyll Toothpaste No. 8

Powders—Aluminum Hydrate	39.7	Parts by	Weight
Titanium Dioxide	1.0	"	"
Sodium Alginate	2.3	"	"
Sodium Saccharine	1.5	"	"
Sodium Lauryl Sulfoacetate	3.0	"	"
Elixir —Glycerine	10.0	"	"
Sorbo	14.25	"	"
Water	20.00	"	"
Chlorophyll (water soluble) 100 per cent	.07	"	"
Flavor	1.00	"	"

PROCEDURE: Hot Process.

The eight formulas listed above all yield excellent stable products. Some variation may be necessary to adapt any one formula to a particular product. As was previously stated, such properties as viscosity and stability are determined by the sources of raw materials.

Originally, I. C. Schooner and W. Souder of the National Bureau of Standards developed a set of specifications for toothpaste to be purchased by the U. S. Government. These were published in the JOURNAL OF AMERICAN DENTAL ASSOCIATION and reprinted in Francis Chilson's MODERN COSMETICS.[1] Although these specifications are somewhat out of date, they are of such value as to give a general idea as to what should be expected in a tooth-

[1]MODERN COSMETICS F. Chilson. 2nd Ed., pp. 191.

P·L·C

manufacturers

of

LIPSTICKS

FACE POWDER

DRY & CREME

ROUGES

MASCARAS

&

LIQUID & CREME

FOUNDATIONS

LOTIONS

CREMES

Inquiries Invited

P L C

Private Label Cosmetics

Co., Inc.

520 West 48th St., New York 36, N.Y.

CALL WH&C
for Raw Materials
Phone: CHelsea 3-6048

SESAME OIL, U.S.P.

PEANUT OIL, U.S.P.

FATTY ACIDS all grades

- ☐ LECITHIN
- ☐ LANOLIN
- ☐ CHLOROPHYLL
- ☐ CAUSTIC SODA
- ☐ CAUSTIC POTASH
- ☐ SODIUM CARBONATE
- ☐ ANHYDROUS SODIUM (Silicate of Soda)
- ☐ METASILICATE
- ☐ SODIUM ORTHOSILICATE
- ☐ STEARATE ACIDS—all grades
- ☐ FOAMING AGENTS
- ☐ SEQUESTERING AGENTS
- ☐ PHOSPHATES

Since 1838, headquarters for oils, fatty acids, detergents and specialties.

SINCE 1838

Warehouses in New York and Newark, N. J.

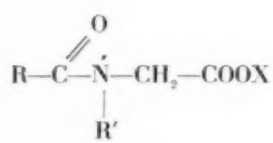
Welch, Holme & Clark Co., Inc.
439 WEST STREET NEW YORK 14, N.Y.

paste. An outline of these specifications follows:

1. Undiluted toothpaste should cause no irritation or unpleasant symptom upon contact with mucous membranes for two minutes.
2. The color shall be white, cream, or pink with a pleasant flavor.
3. The paste shall be extruded from the tube at 10° C. without excessive pressure.
4. The paste shall be stable when cooled to 15° C. for one hour or heated to 50° C. for 72 hours.
5. Forty per cent of the paste (or more) shall consist of any of the following: Calcium carbonate, dicalcium phosphate, magnesium carbonate, magnesium hydroxide. Hard or soft soap USP XI not to exceed 20 per cent, sodium benzoate 2.5 per cent, and thymol 0.1 per cent.
6. One hundred per cent shall pass through a U. S. Stand. No. 100 sieve and 98 per cent through a U. S. Std. No. 200 sieve.
7. Arsenic and heavy metal content shall be at the absolute minimum.
8. The pH value of the toothpaste, diluted with four parts of water to one part of the paste (by weight), shall run between 4.9 and 10.1.
9. The toothpaste shall not scratch glass.

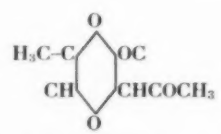
Newer Developments

Very recently new toothpastes have been put upon the market, said to contain antienzymes. These antienzymes have, according to several reputable manufacturers, the property of inhibiting the enzymes present in the mouth from producing acid which, in turn, decays the teeth. One daily brushing of the teeth with a paste containing one of these compounds is supposed to inhibit acid production all day long. Accordingly, the composition of a great majority of these antienzyme chemicals conform to the general formula:



R being a higher unsaturated fatty acyl radical, R′ a lower alkyl, and X being hydrogen, or any salt forming, water soluble cation.

In actual tests sodium oxalate and sodium dehydroacetate, in combination or the latter alone, have antienzyme properties. The structure of sodium dehydroacetate is:



It is quite possible that the addition of small amounts of compounds with a structure similar to that above

might possess enzyme-inhibiting properties. There is as yet insufficient data as to the validity of the claims about antienzyme-containing toothpastes, and as a result no specific formulas for a toothpaste of this nature have been included in this survey.

Odor Stability in Aerosols

(*Continued from page 39*)

colognes were sprayed onto cleansing tissue which was odorless. The shave creams were dispensed in quantities approximating a single normal use onto the same tissue. In the course of time it is hoped that correlation of accelerated test results and actual shelf life can be achieved.

Summary of Results on Colognes

1. The odor of the propellant was noticeable initially in the colognes made up with ingredients of low odor intensity.
2. The propellant had an unfavorable effect on the odor of hydroxycitronellal stored at room temperature.
3. Some of the cologne odors exhibited surprisingly strong odor intensity—apparently a permanent change. The explanation of this is possibly that azeotropic mixtures are formed between final trace quantities of the propellent and the perfume principle which yield a more volatile perfume with correspondingly higher odor intensity. Methyl diphenyl ether in particular exhibited this characteristic.
4. One of the elevated temperature storage samples of pressurized isoeugenol showed a vanillin like sweetness not observed in the other samples. This is considered significant in view of the fact that the same effect was picked up in the shave cream samples.
5. Methyl anthranilate, citral and linalyl acetate all exhibited an apparent initial intensity of odor greater than nonpressurized samples. The explanation for this is in general the same as the permanent intensity increase mentioned earlier.
6. Methyl benzoate is not entirely stable as a pressurized cologne—one of the pressurized room temperature samples developed a benzaldehyde-like odor.
7. Pine needle Siberian developed a turpentine like note in the pressurized samples both at room temperature and elevated temperature.

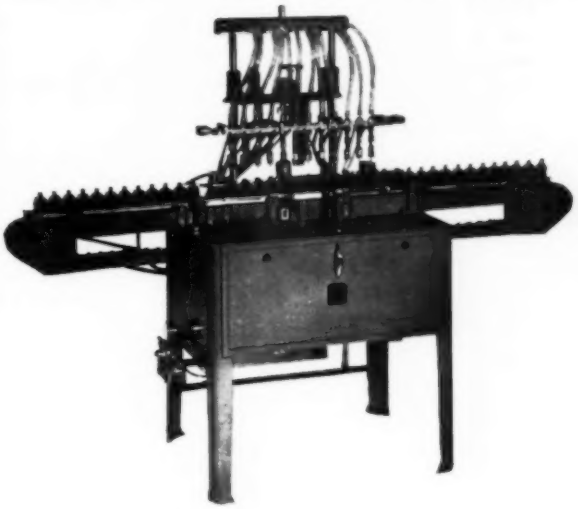
Summary of Results on Shave Creams

1. During the period of room temperature storage twenty-eight out of the thirty perfumes retained their original odor in both pressurized and unpressurized packages.
2. Citral is unstable at room temperature in the pressurized shave cream system.
3. Phenyl acetaldehyde is unstable at room temperature in the pressurized shave cream system.
4. Many of the samples stored at elevated tempera-

"PERL" fully automatic

STRAIGHT LINE BOTTLE FILLER

for the smallest & largest bottler



fills different shape and size bottles without a change in parts

Fully automatic in operation—no operator required—machine pays for itself in labor savings. By a simple adjustment, it takes only minutes to change from ½ ounce to 8 ounce bottles or from 8 ounce to 32 ounce bottles, or from 16 ounce to 1 gallon bottles with this new filling machine. No parts! No experts! Anyone can do it.

In addition to this important money-saving feature, the Perl Straight Line Bottle Filler offers these advantages:

- **LOWEST COST**—lower than most machines of comparable speed and versatility. And there are no additional parts to buy for filling different size or shape bottles.
- **HIGH SPEED**—fills as many as 180 two ounce bottles a minute. Comparable high speeds with other size bottles.
- **MINIMUM FOAMING**—because bottles come to a standstill for filling, agitation of the liquid is eliminated.
- **MINIMUM MAINTENANCE**—risk of damaged filling spouts or broken bottles is eliminated because of standstill filling.
- **EASY CLEANING**—without taking apart filling valves or other parts.

These advantages mean lowest filling costs for you. No matter what liquids you bottle, you can get all these features only in the Perl fully automatic straight line bottle filler. Write for complete details today.

A Complete Line of Machines For

Bottle Filling • Tube Filling & Closing
Can Filling • Bottle Cleaning

PERL MACHINE MFG. CO.
68 JAY STREET BROOKLYN, N. Y.

tures, exhibited changes that were apparently caused more by the temperature than by the propellant since in practically every case both the pressurized and unpressurized samples exhibited the same type of deterioration. Three samples which exhibited a major degradation of odor are benzyl acetate, methyl benzoate and aldehyde C-10. Inasmuch as the degradation occurred in both the pressurized and nonpressurized samples, it is apparently due to the effect of the shaving cream at elevated temperature on the perfume chemicals.

5. Three perfume chemicals exhibited appreciable discoloration of both pressurized and non-pressurized samples. They are alpha ionone Coeur, eugenol U. S. P. and citral C. P.

While it is felt that the high temperature storage may have induced changes which would never occur in normal storage, we are carrying on the room temperature storage samples and will evaluate them from time to time in an effort to develop correlation if it exists, between elevated temperature deterioration over short periods of time as a test procedure, with normal deterioration occurring as a simple function of time.

COLOGNES

	Room Temperature			Elevated Temperature	
	RC	RF	RFF	OC	OF	OFF
1.	not characteristic not as floral			characteristic		
2.						
3.						
4.						
5.	Ex.	Ex.			Ex.	Ex.
6.					indications of very slight oxid. —vanillin note	Ex.
7.	Ex.	Ex.		Ex.	Ex.	Ex.
8.						
9.	Ex.	Ex.		Ex.	Ex.	Ex.
10.					half evaporated	missing
11.	Ex.	Ex.		Ex.	Ex.	Ex.
12.						
13.						
14.			odor int. increased		odor int. increased	odor int. increased
15.						
16.						
17.			odor int. increased		odor int. increased	odor int. increased
18.	Ex.	Ex.		Ex.	Ex.	Ex.
19.			odor int. increased		odor int. increased	odor int. increased
20.						
21.						
22.	Ex.	Ex.		Ex.	Ex.	Ex.
23.	Ex.	Ex.		Ex.	Ex.	Ex.
24.						
25.	Ex.	Ex.		Ex.	Ex.	Ex.
26.	sl. benzaldehyde note	Ex.		Ex.	Ex.	Ex.
27.	Ex.	Ex.		Ex.	Ex.	Ex.
28.						
29.	decreased sweetness turpentiney	decreased sweetness turpentiney			decreased sweetness turpentiney	decreased sweetness turpentiney
30.	Ex.	Ex.		Ex.	Ex.	Ex.

RC —Room Temperature Control—Unpressurized
RF — " " " Pressurized
RFF—Duplicate Room Temperature Pressurized
OC —Oven Storage Control—Unpressurized
OF — " " " Pressurized
OFF—Duplicate Oven Storage Pressurized
If odor exhibited no change, no notation was made in the table.
Designation of Excellent (Ex.) indicate excellent coverage.

SHAVING CREAM

	Room Temperature			Elevated Temperature	
	Control Non-Pressurized Fresh Sample	Non-Pressurized	Pressurized	Non-Pressurized	Pressurized
1.				generally weaker	
2.				generally weaker	
3.					
4.				generally weaker	
5.					
6.				possible slight change with traces of vanillin	
7.				discoloration discoloration generally weaker	
8.				slight change less floral and weaker	
9.				less flowery generally weaker	
10.				generally weaker	
11.				generally weaker	
12.				slight discoloration	slight discoloration
13.					
14.					
15.					
16.				odor change not as nice	
17.		off odor		great discoloration off odor	
18.		weak flat in odor		slight off odor	
19.					sl. off odor
20.					
21.					
22.				substantial degradation of odor	
23.					
24.					
25.					
26.				noticeable degradation of odor	
27.				slight degradation of odor	appreciable degradation off odor—fatty
28.				not as sweet change in odor	
29.				weaker due to heat-soapy due to heat—soapy	
30.				slight change	

Government Suit Against Perfume Importers

(*Continued from page 29*)

ment different amounts of their products which they would allow tourists or others to bring in, the Customs Department said that enforcement of this rule was very difficult. The Department asked if all these firms would not agree on uniform provisions. Therefore, the twenty-odd firms involved all put in uniform requirements with the Customs Department. These requirements provided that a tourist was allowed to bring in one bottle of any size of one or all odors in the line of any or all perfume importers. Each importer filed this provision with the Customs Department, and the Department was pleased that the thing had been put on a uniform basis and thus made easier for them to enforce.

However, in 1951, shortly after the above action was taken, the Department of Justice issued grand jury subpoenas upon all these perfume firms, as well as upon the Toilet Goods Association, the Perfume Importers Association, the National Retail Dry Goods Association, National Association of Retail Druggists, American Merchandising Corporation, Saks - Fifth Avenue, and some others, in an attempt to obtain indictments for conspiracy in arriving at the restriction limiting importation to one bottle. Nothing ever came of this action and the files of the Toilet Goods Association and of the National Association of Retail Druggists were returned. However, the others, or at least those of the perfume importers, were never returned to this day.

The companies selected for prosecution are of four different types of ownership, so far as the American companies and the French affiliates are concerned. In the case of Lanvin, the American company is controlled directly by the French company so that here we have international control from France. In the case of Guerlain, the American business is conducted by Guerlain Perfume Corporation, of Delaware, a wholly-owned subsidiary of the French firm. In the case of Corday, both the French and American firms are under the control, management, and ownership of Benson Storfer, an American citizen. And in the case of Empro (Lentheric), we have ownership of both the American and French houses by an American corporation. Incidently, it is reported that the French house of Lentheric has been sold to the British house so that the American house is no longer international. This is believed to be the reason that the American house signed a consent decree. They do not believe that they have anything to worry about since their products are largely produced in this country. Certainly as far as any of their producrs that are made in this country are concerned, they have nothing to worry about, since these can hardly be imported from France as genuine articles under the United States trademarks.

It is generally believed that this action was dreamt up during the Truman Administration, and consider-

Modern Flavors for Modern Medicines

● There is nothing like MM&R Flavors to impart outstanding taste appeal to drugs both old and new.

Over 50 per cent of the drugs in use today were unknown to medicine ten years ago. Many are unpalatable and difficult to mask with traditional flavors.

To meet the highly specialized flavor problems of the modern pharmaceutical industry our chemists have developed AROMATIC MIXTURES MM&R — "Modern Flavors for Modern Medicines."

Write for special literature and price list.

MAGNUS, MABEE & REYNARD, INC.
One of the World's Greatest Suppliers of Essential Oils and Flavoring Materials
16 DESBROSSES STREET, NEW YORK 13, N. Y.
221 N. LaSALLE STREET, CHICAGO 1, ILLINOIS

PRIVATE FORMULA
Tablets and Capsules
BY THE THOUSANDS---
OR BY THE MILLIONS

Over 39 years' experience enables us to render you prompt, accurate, and dependable service in the manufacture of your tablets and hard shell capsules. Our central location expedites delivery to any point in the country. Furnished bulk or packaged.

Vitamin Tablets and Capsules — Tablets — Ointments — Powders

We Invite Your Inquiries

Standard Pharmacal Co.
OF CHICAGO
PRIVATE FORMULA MANUFACTURERS
M F Charley, President
847-853 W JACKSON BLVD CHICAGO 7, ILL

able surprise is expressed that this administration would follow it through. What the basic concept behind it is, no one can be sure. Some believe that the idea is to increase the flow of goods from France to this country. Perhaps the idea is to increase the flow of goods into this country from all foreign countries, or at least from all of Europe. This appears to be so for the reason that Antitrust Division Chief Barnes says that this matter is not restricted to perfumes, but includes other things such as watches and cameras. Therefore, the action could be extended to any imported goods trademarked in this country and sold in foreign markets at lower prices than are charged here.

The perfume business is particularly vulnerable in this regard for the reason that prices for French perfumes in France are about one-fifth to one-fourth of the prices at which they are sold in this country. And this difference in price is hardly due to the tariff which has been brought down to 18 2/3 per cent from a former 75 per cent. The difference in price is due to the high distribution costs employed by those who merchandise these products in the United States. These merchants grant large discounts to retailers, they pay for cooperative advertising, they give P.M.'s, and so forth.

However, there is no reason why products of other industries should not also be extremely vulnerable. One has only to look at the prices at which discount houses sell domestic goods, and the prices at which some foreign watches and cameras are sold to realize that there exists sufficient margin for this practice to be extended to most of our fine imports including fabrics, chinaware and dinnerware, and any number of other lines.

It must be appreciated that such a requirement as is asked by the Department of Justice would mean the end of fair trading of prices of the products of these perfume importers. Certainly if trademarks do not stand up against the practice of importing, fair trade prices cannot be enforced against the sale of goods which were never in the possession of the company trying to enforce the price minimums. It is difficult enough to try and maintain prices on products which have originated with a particular firm, but it would be impossible to enforce prices on goods which are the same as yours, but which you never owned and therefore have absolutely no control over.

With the end of fair trade, and the flooding of the market with goods imported by others than the owners of the trademarks, would come the end of restricted distribution and eventually the unwillingness of the owners of the trademarks to continue to indulge in high-cost promotional and merchandising activities when they cannot sell their goods at a profit. Furthermore, when other importers start selling these goods to every type of retailer who wants to buy them—and the lower prices might even put them in variety stores and super markets—then the stores which have been the main outlets over the years will probably discontinue the lines. Certainly the prestige retail accounts will drop the lines quickly.

This is what an affirmative answer by the court to the Department of Justice will do to French perfumes and eventually to other lines of fine imported goods. So instead of promoting the flow of goods from France or other countries, it will tend to kill it.

And if, by some chance, this action does not kill these fine imports because of lack of promotion in this country, then think of what this action will do to the sale of our domestic lines. If the lines were killed and trade with the foreign countries was killed with it, then domestic manufacturers might be expected to benefit. Perhaps this is the scheme behind this action. However, if the foreign goods are sold at sharply lower prices by these other importers who would be legalized by this court action, then the domestic manufacturers would have to lower their prices to be in a competitive position with the imported goods.

No matter how one looks at it, this action on the part of the Department can have only a destructive effect upon business in this country. The fact that it is so broad in scope and is not confined solely to the perfume industry, gives us hope that such a condition cannot be tolerated in this country. It is quite likely that a decision in favor of the Department of Justice would result in an amendment of the Lanham Act and a clarification of the law of this country restoring full rights to owners of trademarks.

P.V.P.

(*Continued from page 33*)

dextran (another plasma extender), nonantigenic.

In the opinion of this authority, the PVP solution is at present the best blood volume expander for civil defense purposes. It is available in large quantities, it can be prepared rapidly and inexpensively, and it is stable on prolonged storage. Compared with other expanders, it does not gel or freeze as does gelatin, liquid plasma or the water accompanying dried plasma. It does not require reconstitution before administration as do globin, or dried or frozen plasma. Its freedom from early side reactions makes it superior to dextran for administration by unskilled persons. Soutter believes that the PVP expander is "ideal" for use in civil defense stations and ambulances for treating shock of all kinds, until whole blood can be provided.

These characteristics help to explain why the Federal Civil Defense Administration and the Armed Forces have contracted for nearly 1,700,000 units or pints of the 3.5 per cent PVP solution; for more than for any other blood volume expander.[1-15] Late in 1953, PVP received the approval of a National Research Council committee for commercial distribution. However, among several qualifications, the committee advised that the use of the solution be limited to 1,000 cc. per normal person and that the label should warn against repeated use.[16]

This growing acceptance is based upon newer studies, especially American investigations, on the value of PVP expanders in conditions characterized by decreased circulating blood volume, as in shock and collapse due

to mechanical injuries, trauma and surgery, extensive burns, hemorrhage and dehydration.[13]

Indicative is the report of Cordice, Suess and Scudder[17] on the use of PVP-Macrose as an emergency treatment in 35 patients with traumatic and hemorrhagic shock of all degrees of severity associated with head injuries, multiple fractures, and penetrating wounds of both the chest and abdomen. The clinical response was judged to be good in all patients, as shown by prompt rise in blood pressure, improvement in vital signs, and decrease in the venous hematrocrit and plasma proteins. The urinary output was satisfactory in all cases. No immediate or delayed sensitivity reactions were observed and there were no toxic reactions. No interference with blood typing, coagulability, or depression of hematopoiesis occurred. These findings, it was stated, fully substantiated previous reports and indicated that PVP is a valuable adjunct in the emergency treatment of both traumatic and hemorrhagic shock. In another report these workers[18] also stated that PVP is of similar value in the treatment of severe burn shock.

Also indicative are the conclusions reached by Haynes and his colleagues[19] in an evaluation of plasma substitutes in wound shock. Their studies, they said, point to polyvinylpyrrolidone as an effective agent in the treatment of oligemic shock. Posner and his associates[20] reported that six cases of obstetrical shock and two cases in which shock was due to hemorrhage occurring in pregnancy were controlled with PVP-Macrose pending the arrival of compatible blood from the blood bank. Although it was found that PVP diffuses across the placental barrier, no untoward effect was noted in either the mother or the newborn infant.

Other conditions have benefited from the injection of PVP solutions. In cases of hemophelic hemorrhage, the fluid proved effective in promptly arresting the bleeding.[21] A number of European workers[22-24] have also reported on the use of such solutions in the treatment of lipoid nephrophis. In passing, it may be noted that PVP preparations for blood typing serums have been made available, replacing bovine albumin.[25]

Like others who have reported on PVP, Gropper and his colleagues[7] observe that this material has some interesting properties not related to its use as a plasma expander. Like albumin, it can chemically bind certain molecules such as dyes and bilirubin and thereby effect their renal excretion. This is referred to as a "vehicle function." Because of its ability to bind many different types of molecules, PVP may be used to retard the absorption of various drugs, including penicillin and insulin. It also appears capable of binding toxins, such as diphtheria and clostridial toxins, as well as viruses. Of related interest is its ability to reduce the toxicity and irritating properties of various chemical substances, notably iodine. As already mentioned, PVP also has interesting potentialties as a solubilizing agent.

Certain of these effects are due to the ability of PVP to form chemical complexes with various substances.[3,25] In studying this phenomenon, Kuramoto and Higuchi[26]

prophenpyridamine maleate,

the antihistamine with low toxicity and high antihistamine activity. Effective against a wide variety of allergic disorders.

Anhydrohydroxyprogesterone USP
Chorionic Gonadotropin
Desoxycorticosterone Acetate USP
Estradiol USP
Estradiol Benzoate USP
Estrogenic Substance
Estrone USP
Choline Bitartrate
Choline Dihydrogen Citrate
Tri Choline Citrate
Ethinyl Estradiol USP
Methyl Testosterone USP
Methylandrostenediol
Pregnenolone
Progesterone USP
Testosterone USP
Testosterone Propionate USP
Prophenpyridamine Maleate
Phthalylsulfacetimide
Sulfacetimide
Sodium Sulfacetimide

A dependable source for hormones and fine chemicals
VITAMERICAN OIL CORP.
1 John Street, Paterson 2, New Jersey

FOR SOLVING TALC PROBLEMS, DEPENDABLE SUPPLY SOURCE

Call on Whittaker
"The Talc House"
Talc for face powders, baby powders, barber supplies, body powders, creams, lotions, pan cake, rouge, liquid powder.
Whittaker has a talc for every need

DEPENDABLE COSMETIC COLORS
Certified D & C, Lo-Micron, Thomasset

STEARATES
For baby powders, body powders, deodorant creams, foot powders, hand creams, lotions, pan cake, pharmaceuticals, rouge, vanishing creams. Send for free "Stearate" book.

WHITTAKER CLARK & DANIELS, INC.
D&C DEPT. B
260 West Broadway
New York 13, N. Y.
IN CANADA

found that polyvinylpyrrolidone forms chemical complexes in solution with such pharmaceuticals as sulfathiazole, sodium salicylate, chloromycetin, mandelic acid, para-aminobenzoic acid, benzoic acid, salicylic acid, parahydroxybenzoic acid, metahydroxybenzoic acid, and phenobarbital. They reported that no complexes were formed between PVP in solution with procaine hydrochloride, benzyl penicillin, cortisone, caffeine, theophyllin, aminopyrine, or citric acid.

Also important with respect to the potentialities and limitations of PVP as a complexing agent are the findings of Moss and his associates.[27] In studies on the effect of PVP on pharmacologic activity, they observed that the effect of this material is not predictable, even when applied within a group of related compounds like the barbiturates. They feel that its effect is specific rather than general and that the modifying action must be examined carefully for individual substances, even when they are closely related chemically.

One important effect of the complexing action is the ability of PVP to form water-soluble or water-dispersible combinations from ordinarily insoluble substances. According to the Shelankis[5] many materials, ranging from basic elements to saccharides and proteins are rendered more soluble in the presence of PVP. As an interesting example of this phenomenon, they cite the solubilization of elemental iodine to form a PVP-iodine complex.

Another illustrative example of this effect is provided in a patent[28] describing the solubilization of callicrein, the circulatory hormone. This is combined with PVP and the resulting compound plus sugar are dissolved in an aqueous solvent medium. The solution is frozen and dehydrated from the frozen state to yield a porous, easily water-soluble, solid product.

PVP's complexing action also appears to be associated with its ability to detoxify certain bacterial toxins, viruses, dyes, and potent drugs. Thus, it has been suggested[3] that, in addition to the plasma expander benefits, infusion of PVP solutions may have a specific detoxifying effect on such infections as diphtheria, scarlet fever, meningitis, and tetanus. For example, in one study,[29] 21 children suffering from primary toxic diphtheria were given PVP infusions. All except four survived. In another investigation,[30] the percentage of deaths among children with acute toxic diphtheria treated with PVP was only about half as great as those treated by other methods.

Schubert's[31] studies indicate that a quantitative combination takes place between tetanus toxin and PVP. He found that of 20 guinea pigs treated with tetanus toxin, only two survived. However, when a PVP solution was injected immediately after the toxin 12 of the 20 animals lived. In other experiments, Schubert and Kortum[32] found that the mortality of mice decrease if a dose of *E. coli* endotoxin was followed by an injection of PVP solution.

In studies made by Laquer,[33] a saline solution of PVP *in vitro* had a partial inactivating effect upon the virus of poliomyelitis. However, intraperitoneal injection of PVP before and after inoculation of white mice with the virus had no significant protective action.

PVP also exerts a protective or detoxifying action against several toxic dyes. In the case of these substances, the protective action is associated with the excretion through the kidney of dyes which, without PVP, are either excreted through the liver or not eliminated at all.[13]

As already indicated, PVP is capable of forming complexes with reduced toxicity with quite a number of drugs and chemicals. Perhaps the most interesting example and one that has received much study is the combination formed by PVP and iodine. As noted by Oster and Immergut[34] in their report on this binding action, the affinity of molecular iodine for PVP is of great importance in preventive medicine, because the resulting PVP-iodine complex retains the disinfectant properties of the iodine but eliminates its toxicity.

In his extensive studies with this complex, Shelanski[35] observed that, in addition to maintaining the antibacterial action and substantially reducing toxicity, PVP had apparently eliminated the irritating effect of iodine on the skin. He found that PVP-iodine may be applied directly to any part of the skin for a prolonged period of time without producing irritation, even when covered with bandages. In clinical studies, he used an aqueous solution consisting of 3.5 per cent available iodine and 25 per cent PVP for the treatment of surface infections. These included cases of bacterial infections, sore throat, and mycotic infection. All of these cases showed marked improvement within 18 hours and 94 per cent of the cases cleared up within 36 hours. The combination was also effective in the treatment of wounds and in surgical procedures. PVP-iodine is available commercially as a dark brown, water-soluble powder for use as a bactericide.

In a newer report, Shelanski[36] stated that PVP had been effective in reducing the irritating properties of other compounds, including some detergents, like sodium lauryl sulfate, and certain antibacterial chlorinated phenols. Its detoxifying action had also proved effective with mercury, cyanides and nicotine.

Another interesting example of how PVP can be used to reduce toxicity of familiar substances is offered in a recent patent.[37] In this case, combination with PVP results in a reduction of the endogenous toxicity of pharmaceutical protein hydrolysates.

A good many investigators[13] have reported that PVP prolongs the clinical effect of certain drugs and permits a reduction in the required number of daily injections or doses. As might be expected, this retardant action, which is presumably due to the formation of a molecular complex,[27] has attracted much attention and trial. Hypertonic solutions containing 10 to 20 per cent or more of PVP, plus physiologic salts, have been found suitable for this purpose.[3]

It has been found, for example, that PVP increases the time during which penicillin is retained in the circulatory system; thus reducing the number of injections required to maintain the required penicillin

blood levels. According to Murat,[38] penicillin given intramuscularly with PVP remained in the blood two to three hours longer than when given with physiologic serum. According to Werner,[25] one of the more important repository penicillin preparations, in both oral and parenteral forms, is made with PVP. Procedures for making PVP-penicillin preparations have been given in a foreign patent.[39]

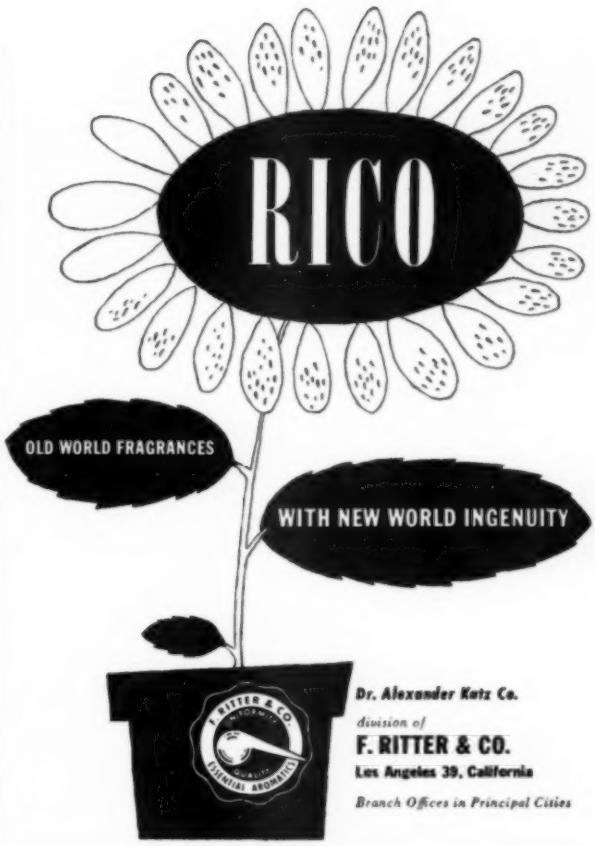
PVP has been used similarly to prolong the action of insulin, According to Courbis,[40] the addition of 25 per cent of polyvinylpyrrolidone prolongs and stabilizes the hypoglycemic action of insulin in the rabbit and in man. The insulin-PVP complex was found to be more efficacious than zinc-protamine insulin in diabetics. Other hormonal preparations, including adrenal cortical extract,[38] posteriory pituitary extract,[41] and gonadotropins,[42] have benefited from the retarding or regulating effect of PVP.

Variable results have been reported from the use of PVP with analgesics and sedatives. Thus in 1948, Siguier and his colleagues[43] reported that PVP prolonged the clinical analgesic effect of morphine and opium; permitting an appreciable reduction in the requisite number of injections. In addition, by using PVP the total daily dose of morphine could be reduced to 67 per cent. However, in recent animal experiments, Graham and his associates[44] found that PVP in concentrations up to 40 per cent had no marked influence on the duration of action or potency of morphine, pethidine, or methadone.

As previously noted, there is a marked variation in the effect of PVP on the several barbiturates. Some are improved by the conjunct use of PVP while other members of this group of drugs are not benefited. The newer studies of Graham and his coworkers[45] with barbiturates have reaffirmed the views of Moss and his associates[27] that PVP must be tested on an individual basis with each drug. In passing it may be mentioned that Weese[46] has reported the use of PVP solutions as detoxifying aids in barbiturate poisoning.

More consistent results appear to have been obtained with procaine. The results of clinical tests point to the ability of PVP to prolong the activity of this drug and reduce the number of injections required.[3] It is reported[1] that both the retardant and detoxifying properties of PVP are effectively employed in a procaine dental anesthetic. This product is said[25] to have the advantage of lowered toxicity and a reduction of undesired side-effects.

Other drugs are also being combined with PVP in the hope of improving their properties. Studies with salicylates show that the elimination of the sodium salt was retarded and salicylate blood levels prolonged by the simultaneous injection of PVP.[38,47] British investigators[48,49] have used PVP to prolong the action and reduce the number of injections of the potent methonium compounds used in the treatment of hypertension With sodium *para*-aminosalicylate, it was found[50] that PVP acts to maintain higher and more prolonged blood concentrations of the tuberculostatic drug.



for YOUR PRIVATE BRAND PRODUCT
MANUFACTURED
and
Quality Controlled
EVERY STEP FROM IDEA TO FINISHED CREATION.
PERFECT PACKAGING OF YOUR PRODUCT.
NO CUSTOMER TOO LARGE OR TOO SMALL.
Counselling, Designing and Art Service for every package.
Our own Label Printing and Designing Plant.
Bottle and Jar Decorating Equipment on the Premises.
CREAMS, LOTIONS, LIQUIDS, SHAMPOOS, UP-TO-DATE FORMULATIONS.
CONTRACT FILLING, PACKAGING TO SPECIFICATIONS.
WINDSOR CHEMICAL LABORATORIES
161 LEVERINGTON AVE., PHILADELPHIA 27, PA.

Perlstein[51] used PVP orally to retard the action of tablets of Prendevol, a new drug for treating epilepsy. European investigators have reported that PVP augmented and prolonged the action of various bronchodilator drugs administered as aerosols to patients with asthma and similar respiratory diseases.[52,53] Other drug preparations using PVP's properties are being evaluated.[1]

Other phases of pharmaceutical manufacture have taken advantage of other characteristics of PVP. It is being used, for example, as a tablet binder for a number of medicaments, including antibiotics.[1] PVP has also been selected to impart needed viscosity and tissue adhesiveness to improved x-ray contrast media.[54]

Because PVP is an efficient binder, stabilizer, suspending agent, and film former and because it shows other interesting properties, including the ability to reduce the irritant properties of many raw materials,[5] the cosmetic industry has also shown great interest in its potentialities. Because of this interest, PVP is now being used in such cosmetic products as hair lacquers, aerosol shaving creams, men's hair grooms, liquid make-up, semi-fluid skin creams, and a nail polish remover. Various other products with PVP as an ingredient are under investigation.

The fact that PVP is substantive to human hair makes it an interesting material for use in hair care products. It has been found[55] that when hair is placed in contact with a PVP solution, a certain amount of PVP enters the hair shaft. Subsequent rinsings of the hair do not remove all the PVP which is apparently combined with elements of the lumen of the hair shaft. On microscopic examination it is seen that the hair takes on an improved appearance due to an increased clarity of the hair which accentuates the natural color. In addition, the hair appears to be smoother.

Because of these and other properties, PVP appears to have found an important place in the formulation of aerosol hair lacquers.[56] Its ability to form hard, flexible but nonflaking films and its solubility in alcohol are important considerations, while its solubility in water and its hygroscopicity make it unusually effective in such products. PVP is replacing shellac in hair lacquers because it can be completely removed by washing, and the hair can be reset for several days by merely using a wet comb or brush. In addition, it appears to swell the hair slightly; this effect contributing to better hair control.[1]

These characteristics have led to the consideration of PVP in the preparation of wave set lotions, cream rinses and related products. It can also be a useful adjunct in hair dyeing procedures. Because PVP improves hair management properties and acts as a foam stabilizer, it is a useful component of shampoos.

This ability to stabilize lather systems helps to account for the inclusion of PVP in shaving creams. In addition, its presence improves the feel and spreading properties of the cream. When added to after-shave lotions, PVP leaves a monomolecular film on the face, making the skin feel smoother. PVP also seems to take the sting out of the alcohol in the lotion.[25]

PVP is also being evaluated as an ingredient of skin-cleansing creams. In such products, the ability of the material to combine with and detoxify skin-irritating toxins is an important consideration, as is its action in leaving a protective film on the face.[1,25] PVP also improves the texture of the products; giving a creamier consistency.

Another unusual property of PVP is its ability to remove stains from the teeth. This makes it of obvious interest in the formulation of dentifrices. Indeed, as shown in the specifications of a recent patent[57] such utility has been the subject of much study. From the patent data it appears that dentifrices containing PVP possess a marked ability to remove tar stains and the like from tooth surfaces, including areas not ordinarily accessible to polishing agents and the toothbrush. It is believed that this effect is due, in part at least, to the solubility of PVP in water and to its chemical reactivity with the stain-causing complex tar materials to produce a soluble product that is more readily removed from the tooth surfaces.

The patent includes several illustrative formulas for making dental creams as well as a formula for a liquid dentifrice and a tooth powder. An example of a dental cream is as follows:

Calcium carbonate	50.0 per cent
Polyvinylpyrrolidone	0.5 " "
Sodium lauryl sulfoacetate	2.0 " "
Glycerine	28.0 " "
Water	17.0 " "
Gum, flavor, etc.	sufficient

All-in-all, it would seem that polyvinylpyrrolidone is a very interesting material. Its unusual range of properties points to many potential applications in the drug and cosmetic industries.

BIBLIOGRAPHY

1. Hansen, E. C., Bergman, C. A. & Witwer, D. B.: Am. Dyestuff Reporter, Feb. 1, 1954.
2. Anon.: Chem. Ind. Week 68:17, Jan. 20, 1951.
3. Anon.: "Plasdone Polyvinylpyrrolidone," Bull. No. P-100, New York, General Aniline & Film Corp., 22 pp.
4. Anon.: Alchemist 15:158, 1951.
5. Shelanski, H. A. & Shelanski, M. V.: "PVP—A Useful Adjunct in Cosmetics." Philadelphia, Industrial Toxicology Laboratories, 1953.
6. Ravdin, I. S.: J.A.M.A. 150:10, 1952.
7. Gropper, A. L., Raisz, L. G. & Amspacher, W. H.: Internat. Abstr. Surg. 95:521, 1952.
8. Loeffler, R. K. & Scudder, J.: Am. J. Clin. Path. 23:311, 1953.
9. Hartman, F. W. & Behrmann, V. G.: J.A.M.A. 152:1116, 1953.
10. Pulaski, E. J.: U. S. Armed Forces Med. J. 3:519, 1952.
11. Soutter, L.: J. Am. Geriat. Soc. 1:531, 1953.
12. Ravin, H. A., Seligman, A. M. & Fine, J.: New England J. Med. 247: 921, 1952.
13. Anon.: "PVP, Polyvinylpyrrolidone: An Annotated Bibliography (to 1950)." New York, General Aniline & Film Corp. 1951.
14. Lesser, M. A.: Drug & Cosmetic Ind. 68:454, 1951.
15. Anon.: Am. Drug. 126:13, Aug. 4, 1952.
16. Newsletter: Chem. Week 73:10, Dec. 12, 1953.
17. Cordice, J. W. V., Jr., Suess, J. E. & Scudder, J.: Surg. Gynec. & Obstet. 97:361, 1953.
18. Cordice, J. W. V., Jr., Suess, J. E. & Scudder, J.: Surg. Gynec. & Obstet. 97:29, 1953.
19. Haynes, B. W., Crawford, E. S., Mahaffey, J. H. & De Bakay, M. E.: Paper presented at the 38th meeting, American College of Surgeons, New York, Sept. 24, 1952.
20. Posner, A. C., Cordice, J. W. V., Jr. & Scudder, J.: Surg., Gynec. & Obstet. 96:581, 1953.
21. Chevallier, P., Guillot, M. & Fiebrer, A.: Le Sang 20:94, 1949.
22. Canivet, J.: Gaz. med. de France 25:531, 1948.
23. Claisse, R., Cruciani, C. & Vaur, P.: Paris med. 40:491, 1950.
24. Ravault, P. et al: Lyon med. 179:252, 1948.
25. Werner, J.: (through) Drug Trade News, July 6, 1953.
26. Kuramoto, R. & Higuchi, T.: Paper presented before the American Pharmaceutical Association convention, August, 1953 (through) Am. Drug. 128:39, Aug. 31, 1953.
27. Moss, J. N., Brendel, R., Beiler, J. M. & Martin, G. J.: Am. J. Pharm. 124:94, 1952.
28. Schultz, F. & Ziegler, F.: U. S. Pat. 2,671,749, 1954.

29. Stroder, J. & Hockerts, T.: Deut. Med. Woch-schr. 74:282, 1949.
30. Dieckhoff, J.: Arch. Kinderheilk. 139:52, 1950.
31. Schubert, R.: Arztl. Forschg. 3:425, 1949.
32. Schubert, R. & Kortum, G.: Deut. Z. Verdauungs-u. Stoffwechselkrankh. 12:26, 1950 (through) Chem. Obstr. 46:5703, 1952.
33. Laquer, K. G.: J. Philadelphia Gen. Hosp. 3:78, 1952.
34. Oster, G. & Immergut, E. H.: J. Am. Chem. Soc. 76:1393, 1954.
35. Shelanski, H. A.: PVP-Iodine Report, Philadelphia, Industrial Toxicological Lab., 1951.
36. Shelanski, H. A.: Paper presented before the Society of Cosmetic Chemists, New York, Dec. 10, 1953.
37. Shelanski, H. A. & Cantor, A.: U. S. Pat. 2,675,341, 1954.
38. Murat, M.: Produits Pharm. 4:350, 1949 (through) Chem. Abstr. 44:6028. 1950.
39. Rhone-Poulenc: Fr. Pat. 958,829,1950.
40. Courbis, F. F.: Farm. Chilena 25:247, 1951 (through) Chem. Abstr. 46: 1160, 1952.
41. Lederer, J.: Acta endocrinol. 2:307, 1949.
42. Pedersen:Bjergaard, K. & Tonnesen, M.: Dansk. Tids. Farm. 24:271, 1950.
43. Siguier, F., Gindicilli, R. & Walter, C.: Progres med. No. 9:223, 1948.
44. Graham, W. D., Slinger, R. & Teed, H.: J. Pharm. & Pharmacol. 6:115, 1954.
45. Graham, W. D., Slinger, R. & Teed, H.: J. Pharm. & Pharmacol. 6:27, 1954.
46. Weese, H.: Muench. med. Wochuschr. 95:456, 1953.
47. Pellerat, J. & Murat, M.: Therapie 2:49, 1947.
48. Murphy, E. A. & Eastwood, J.: Lancet 2:804, 1953.
49. Smirk, F. H.: Brit. Med. J. 1:718, 1954.
50. Weiss, W., Seven, M. & Eisenberg, G. M.: Am. J. Med. Sci. 225:560, 1953.
51. Perlstein, M. A.: Neurology 3:744, 1953.
52. Tiffeneau, R. & Singuier, J.: Bull. acad. med. 1947, p. 697.
53. Charlier, R. & Phillipot, E.: Arch. intern. pharmacodynamie 78:573, 1949.
54. Rubin, I. C., Myller, E. & Hartman, C. S.: Fertility & Sterility 4:357, 1953.
55. Shelanski, H. A.: "PVP Hair Substantivity," Philadelphia, Industrial Toxicological Labs., 1954.
56. Anon.: Chem. Week, May 23, 1953.
57. Colgate-Palmolive-Peet Co.: Union So. Africa Pat. 17,493, 1953.

Ethyl Cellulose in Aerosol Hair Lacquers

(Continued from page 31)

tions were compared as a "set" for hair by several women. Lacquers were applied with one pass of the aerosol dispenser. Comments varied, but some preference was expressed for Formulation No. 3, although at four per cent solids (by weight) it appeared to give slightly too much stiffening action. Solutions 3 and 4 compare N and T types of ethyl cellulose. There is apparently no difference between the two types in their performance in this particular formulation.

Table 4 shows the effect of reducing the solids content.

Table 4

AEROSOL-APPLIED ETHYL CELLULOSE HAIR LACQUERS

	1	2
Ethyl Cellulose N-10	1.9	1.9
Diethylene Glycol Oleate (Diglycol Oleate S)	1.1	1.1
Absolute Alcohol	47	47
Freon 12	50	
50:50 Freon 11:Freon 12		50
	100.0	100.0
Spraying and Drying Characteristics (On Glass Plate)	Excellent flowout dries tack-free in 2 minutes (As a 0.3-mil dry film applied to glass)	Fair flowout dries tack-free in 3 minutes
Properties as "Set for Hair"	Good gloss, excellent "set" characteristics, no tack	Same
Ease of removal by washing (from glass plate—10 rubs with wet cloth—or from hair)	Excellent (Complete Removal)	

FOUNDED T & B 1854

The Symbol of Standardization

GUMS

ARABIC
TRAGACANTH
KARAYA

WHOLE GUM—Cleaned and repacked before shipment.

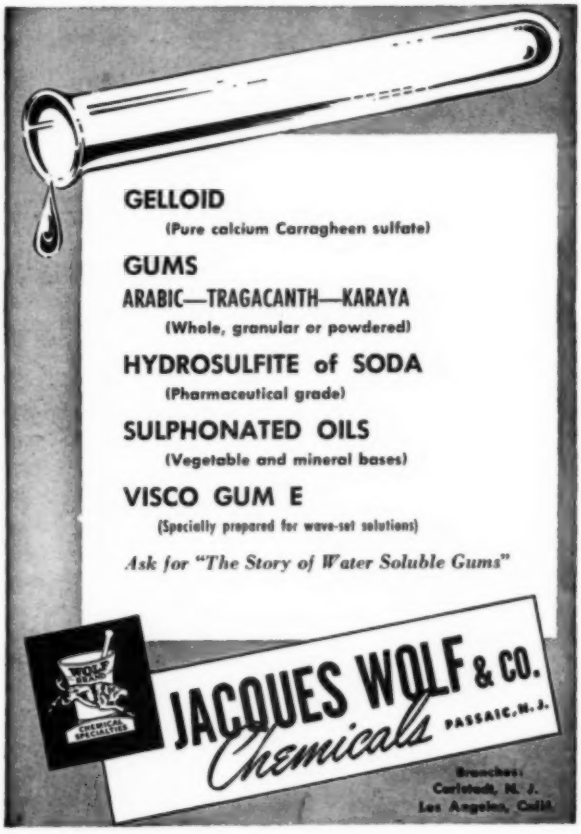
POWDERED GRADES—Standardized by milling under strict laboratory control.

GRAIN GUMS—Graded to uniformity and standardized.

T & B STANDARDIZED GUMS are your best protection against production difficulties.

All Powder Gums Standardized by Laboratory Control

THURSTON & BRAIDICH
286 Spring Street New York 13
Represented in Chicago by A. C. Drury & Co., Inc.



(*Continued from page 131*)

Lacquer No. 1 represents the previously described formulation reduced to three per cent solids (by weight). This lacquer has excellent properties as a hair "set." A 50-50 mixture of "Freon-11" and "Freon-12" was used as the propellant in No. 2 in place of straight "Freon-12." This resulted in slightly poorer application properties.

Ethyl cellulose hair lacquer No. 1 (Table 4) was compared with several shellac-based commercial hair lacquers by several women. Results indicated that the properties desired in a hair lacquer (amount of stiffening, ease of removal, etc.) differ from individual to individual, but a majority of the women preferred the ethyl cellulose hair lacquer.

Other modifiers such as triethyl citrate and glycerine can be used with ethyl cellulose to produce hair lacquers

Table 5

ETHYL CELLULOSE HAIR LACQUERS BASED ON OTHER MODIFIERS

	1	2
Ethyl Cellulose N-10	1.9	1.9
Triethyl Citrate	1.2	
Glycerine		1.1
Absolute Alcohol, 200 Proof	47	47
"Freon-12"	50	50
	100.0	100.0

having excellent stability and good application and "set" properties. Typical formulations based on these modifiers are shown in Table 5.

Odor and Olfaction

(*Continued from page 112*)

demonstrated that the dye atoms made contact with cellulose atoms at many points. Such atomic models would surely be of great service in studying odor-structure relationships.

Structure and Activity

There is abundant evidence relating physiological activity to the structural features just described. Pauling[25] quotes Paul Ehrlich as one of the first to express the idea: "Only such substances can be anchored at a particular part of the organism which fit into the molecule of the recipient combination as a piece of mosaic fits into a certain pattern." Antibody molecules must fit their homologous haptenes to within less than one angstrom unit, for a methyl group (van der Waals radius 2.0A.) can replace a chlorine atom (radius 1.8° A.) in a haptene without changing its specificity, but when a methyl group replaces a hydrogen atom (radius 1.2A.) the specificity is changed.

Hummer and Kenaga[70] reported marked parallelism of insecticidal activity for the three compounds rotenone, methoxychlor, and DDT. Study of the Fisher-Hirschfelder-Taylor atom models of these three molecules revealed structural similarities not obvious in their plane formulas. Notable points of similarity are the angles of intersection of the axes of the benzenoid rings and the comparable slopes of the planes of these rings. The distance between two oxygens in each of the first two compounds are nearly equal to that between two chlorines in DDT. The rigid configuration of rotenone due to condensed rings is simulated in the other two molecules due to hindrance of rotation by the tricholoromethyl group. They visualize rotenone exerting toxic effect by fitting closely upon an essential region of a polypeptide enzyme, held there by short-range forces such as van der Waals, dipole-dipole, or H-bonds. DDT and methoxychlor can assume a position in which a number of polar and H-bond acceptor groups are superposable on the rotenone structure, and this circumstance is held to account for their similar insecticidal action.

Gero[26] noted that N-methylpiperidine is considered the essential portion of the morphine molecule, and that all the morphine substitutes now in clinical use contain this grouping, with the exception of one, methadone. This compound contains an open-chain amine group. By study of a model, Gero found that the phenyl, methyl and propionyl groups attached to the amine chain hindered rotation, not by making it impossible but by allowing rotation of some parts of the molecule only in concert with other parts. This amounts to steric hindrance, and being contrary to randomness decreases entropy. The protons of one N-methyl group can touch the oxygen of the carbonyl group, allowing a C-H-O hydrogen bond to form, and forcing six atoms of methadone into a position closely resembling a piperidine ring. Thus the structure of methadone is correlated with that of other active morphine substitutes. The concept was supported by study of several derivatives of methadone, which were found to lose morphine activity in proportion to the weakening of the tendency to form a piperidine ring.

Albert and others[27] reported that of various heterocyclic compounds studied, only those with a minimum flat area of about 28 square angstroms possessed bactericidal effect. Oki[28] studied various α,α'—dialkyl derivatives of 4, 4′ dimethoxystilbene, and found that alkyl groups of different sizes exerted differing amount of steric hindrance, so that the benzene nuclei rotated to different degrees, thereby influencing molecular thickness. Maximum estrogenic activity corresponded with a given molecular thickness. Neugebauer[29] calculated van der Waal energies for a number of aromatic carcinogenic molecules, and concluded that such compounds must have an elongated form, with the rings coplanar, in order to promote the strong interaction whereby they may change the structure of proteins and induce mutation.

Aerosol Shave Creams

(*Continued from page 37*)

components in the formula are rather broad, to allow for any of the desired effects sought. The greater the

propellant concentration the greater would be the volume of foam produced. Accompanying this increase in volume would be a lowered concentration per unit volume of water which would make the foam feel relatively dry, and of soap which would detract from the softening properties of the film. At the same time an increase in the soap concentration would cause a marked decrease in the water available for beard softening. The ratio of propellant soap and water must therefore be carefully fixed to arrive at the desired result.

The most important consideration is the mechanical structure of the container. From a relatively crude beginning the container now in general use is a metal container lined internally with a water-lined propel'ant resistant plastic so that danger of hydrolysis due to contact with the metal is minimized. The valve itself is fabricated from nylon and is used in conjunction with a nylon dip-tube. Most of the valves now in use are activated by a stainless steel spring though there are some which contain no spring. Both types are adequate since stainless steel is not easily affected by products of hydrolysis.

In packaging, the aqueous soap solution is usually introduced first and the introduction of the propellants follow. The valve is then set in place, and the completed container is run through a 120° F water bath. If there are any leaks they will be evident because of the escape of bubbles though the water, and the can may be discarded.

Aerosol preparations are still in their infancy and work is now in process on glass containers to replace metal. Some newer types have appeared on the market which are externally coated as a precaution against flying glass if breakage occurs. At this moment there is some hesitancy in subjecting glass containers to as high pressures as are in use in metal, but this temporary obstacle is not considered insurmountable. Some of them are currently being used for packaging toilet waters and colognes—where relatively low pressures are used, but there are attempts to improve their design so their scope would be greater.

There is no doubt that glass lends itself to a more aesthetic appearance than does the metal container. Whether or not the more practical considerations such as breakage could be overcome is still doubtful.

MOULDS
for
LIPSTICKS
MASCARO
SUPPOSITORIES
STYPTIC PENCILS
and DIES for ROUGE
COMPACT POWDER
Write for Catalog
A. CAVALLA, INC. 163 West 18th Street, New York, 11, N.Y.

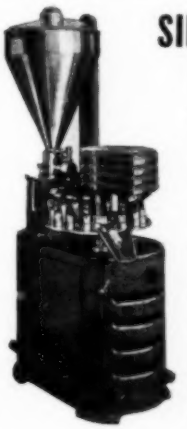
NEWS ABOUT
SOLASOL NEEDLES
SODIUM LAURYL SULFATE USP is now available in the form of small extruded needles. These needles eliminate the sneezing and sifting often encountered in the plant when working with the powder form. Its greater bulk density means less storage and kettle space required.

Other Aceto Products:
Ceramol
Cetyl Alcohol
Myristyl Alcohol
Stearyl Alcohol
Cetyl Chloride
Myristyl Chloride
Stearyl Chloride

NOW! A dustless USP SODIUM LAURYL SULFATE. Flows freely. Dissolves easily. Samples and bulletin 207 on request.

ACETO
CHEMICAL CO., INC.
40-40 Lawrence Street
Flushing 54, N. Y.
INdependence 1-4100

KALIX-DUPUY
AUTOMATIC TUBE FILLING, CLOSING & CRIMPING MACHINE



SIMPLICITY • LOWER PRICE
IMMEDIATE DELIVERY
★ 120 Gross Daily—One Operator.
★ 15 Minutes to Change Size. Very low Change cost.
★ Quickly Cleaned — No Hose — Fills Tubes, Jars or Cans.
★ Accurate Fill—No drip—No smearing—No air.
★ Handles all metal tubes ⅜" to 1½" diameter.
★ Two-fold—Three-fold or Quadruple fold.
★ No tube—no fill. Coding Jaws—Automatic Ejector.
★ Cap Tightener.
★ Stainless Steel Contact Parts.
★ Fully guaranteed—Replacement parts and service readily available.

COMPLETE SERVICE and PARTS FROM NEW YORK STOCK
•
WRITE FOR DESCRIPTIVE FOLDER AND PRICES

HARING EQUIPMENT Corp.
EXCLUSIVE KALIX-DUPUY DISTRIBUTOR
533 WEST BROADWAY, N. Y. 12 • GR 7-2217

EVANS RESEARCH & DEVELOPMENT CORP.
Chemical research—processes—products
Special facilities for cosmetics
SEND FOR BOOKLET "D"
250 E. 43rd St., N. Y. 17, N. Y. MU. 3-0871

*ARLINCO RESEARCH LABORATORY, INC.
Research, Formulation and Application to the Industry. Ethical Pharmaceuticals, Drugs, Cosmetics and Perfumery.
333 W. 52nd St., New York 19, N. Y.
PLaza 7-3861
*A-R-L-Inco means Applied Research Laboratory, Incorp.

LEBERCO LABORATORIES
Hormone Assays • Drug Assay
Pharmaceutical and Cosmetic Research
Sterility Tests • Toxicity Studies
Send for information concerning our services
125 HAWTHORNE ST., ROSELLE PARK, N. J.

RESEARCH LABORATORIES
FOSTER D. SNELL INC.
29 WEST 15th ST. NEW YORK 11, N.Y. — WA 4-8800
CHEMISTS · ENGINEERS

SEIL, PUTT & RUSBY, INC.
Analytical, Consulting, Research Chemists
Established 1921
Specialists in analysis of Drugs, Cosmetics Essential Oils.
Ask for Estimates-Quotations-No Obligation
Lab's: 16 East 34th Street, New York 16, N.Y.
Telephone Murray Hill 3-6368

The Washington Institute for Experimental Medicine
Herndon, Virginia
just across the Potomac from the Nation's Capitol
FOOD, DRUG and COSMETIC RESEARCH
Screening tests and Taxicological Studies.
75 acres devoted to growth and development.

WISCONSIN ALUMNI RESEARCH FOUNDATION
Project Research, Consultation, and Production Control Services in Biochemistry, Chemistry, Bacteriology, Entomology, and Pharmacology
Write for Price Schedule
WISCONSIN ALUMNI RESEARCH FOUNDATION
P. O. BOX 2059-J • MADISON 1, WISCONSIN

TRUESDAIL LABORATORIES, INC.
PRODUCT & PROCESS DEVELOPMENT
TOXICOLOGY — STERILITY TESTS
CHEMISTS · BACTERIOLOGISTS · ENGINEERS
Write for Brochure • 4101 North Figueroa Street
Los Angeles 65, California • CApitol 4148

Business Opportunities

Well established Norwegian importer of Cosmetics and Toiletries, wishes to contact manufacturers of well known brands in this line, which can be imported from Palestine, England or France. Especially interested in: Lipsticks—Mascara—Nail Polish—Dedodorants. Please write to: No. "1780", Fabritius Adv. Agency, Universitetsgaten 20, Oslo, Norway.

Machinery and Equipment For Sale

UNION Rebuilt Machinery
Established 1912

MODERN REBUILT & GUARANTEED EQUIPMENT

Available at Bargain Prices

Fitzpatrick "D" S.S. Comminutors with variable screw feed.

F. J. Stokes RBB Tablet Machine.

Capem 15F, 4-Head Cappers.

Copper Coating Pans, 24" to 40" diameter.

B. P. 2 to 200 gal. Double Arm Mixers.

Pfaudler King, Horix, Elgin Stainless Steel Rotary Fillers.

Kyler and Burt Wraparound Labelers.

Robinson Powder Mixers, 100 to 10,000 lbs. cap.

Robinson, Tyler Hum-mer, Selectro, Great Western Sifters.

Mikro Bantam 15H, 3W, 4TH Pulverizers.

Hobart, Read, Glenn 30-120 qt. Mixers.

B. P. Jumbo-Type 3500 gal. Steam Jacketed, Double Arm Sigma Mixer.

S. & S. G1, G2, HG88 Powder Fillers.

Colton 2RP and 3RP Rotary Tablet Machines.

Stokes Electric Shelf Drying Oven.

Hayssen, Package Machy., Oliver, Hudson Sharp, Scandia, Miller Wrappers.

This Is Only a Partial List

Tell Us Your Requirements

Complete Details & Quotations Promptly Submitted

UNION STANDARD EQUIPMENT CO.
318-322 Lafayette St., New York 12, N. Y.

FOR SALE: 1-Baker Perkins S.S. jacketed Mixer 35 gal.; 1-Day S.S. Mixer 50 gal.; 9-Stokes DDS2, DD2, BB2, D4, D3 and B2 Rotary Tablet Machines: 1-Mikro No. 2 TH S.S. Pulverizer; 6-Rotex Sifters 40"x120", 40"x84", 40"x56", 20"x48" single and double deck; 1-Robinson 4000 lbs. heavy duty Powder Mixer; 1-Day 2000 lbs. Powder Mixer; 2-Shriver 30" and 24" aluminum P&F Filter Presses; 3-Groen 150 and 125 gal. S.S. agitated Kettles; 4-Devine Vacuum Shelf Dryers 4, 6, 10 and 17 shelves. Partial Listing. Send for "News Flash", BRILL EQUIPMENT COMPANY, 2402 Third Avenue, New York 51, New York.

FOR SALE: Stainless Steel tanks and kettles, new and used. Mixers, filters, tablet presses, etc. PERRY EQUIPMENT CORP., 1427 N. 6th Street, Philadelphia 22, Pa.

FOR SALE: At our new location in Hoboken, N. J. Send us your inquiries for SS. Kettles and Tanks, Filter Presses, Mixers, Filters, Grinders, Pebble Mills, Portable Agitators, Filling Machines, Dryers, Pulverizers, Labellers. We are interested in buying your idle or surplus machinery; single items to complete plants. CONSOLIDATED PRODUCTS CO., INC., 69 Garden Street, Hoboken, N. J. HO 3-4425. N.Y. Tel. BA 7-0600.

FOR SALE: Stokes Rebuilt B-2 Rotary Table Machine; Dry Powder Mixers 200 to 4000lbs. Inclusive; Vacuum Shelf Dryers—3 Stokes 138-F—Six Shelf; Buflovak 42 x 42—20 Shelf; Mikro 2TH Pulberizer 15 H.P.; Colton & Stokes Tube Fillers & Closers; Rotex Screens 20" x 48"—40" x 60"—40" x 120"; S. & S. G1 Powder Filler; Eppenbach S.S. QV-6 Colloid Mill; Stainless Steel Kettles & Tanks—New Stainless Steel Powder Mixers; Pony Labelers etc. Send for complete listings. We buy single items or complete plants. THE MACHINERY & EQUIPMENT CORP., 533 West Broadway, New York 12, N. Y. GRamercy 5-6680.

Machinery Wanted

WANTED: To round our production; Automatic Filler & Closer for collapsible tubes, Fitzpatrick S/S Comminutor, Tablet Counter, and high speed Packaging Line. Give full details and price. Box N-5, DRUG AND COSMETIC INDUSTRY.

Help Wanted

ASST. DIRECTOR OF RESEARCH
with Ph.D. or equivalent, 3 to 5 yrs. exp. Must be top grade Administrator, able to relieve Dir. of many details and supervise technical personnel. Exp. with flavors or synthetic-organic helpful but not essential.

FLAVOR CHEMIST
with M.S. and over 5 yrs. exp. in this special field.

SYNTHETIC-ORGANIC CHEMIST
with M.S. or Ph.D. & minimum 2 yrs. exp.

Nationally known drug mfr. will interview acceptable candidates for the above positions. Complete personal and professional history, together with salary requirement, must be covered in replies to

Box JU-3, Drug & Cosmetic Industry
101 West 31st St., New York 1, N. Y.

PRODUCT DEVELOPMENT MAN for large New York State pharmaceutical manufacturers. Ph.D. or equivalent with extensive experience in formulating vitamins, antibiotics, and pharmaceutical preparations. Excellent opportunity for aggressive man with broad training. Write fully, education, experience, availability, and salary desired. Box JU-6, DRUG & COSMETI CINDUSTRY.

Situations Wanted

AVAILABLE: FEMININE APPROACH to your sales problems. Graduate chemist with eleven years experience in industry will consider sales connection as technical representative. Prefer Southwest. IBox JU-5, DRUG & COSMETIC INDUSTRY.

Business Opportunities

MANUFACTURER OF NATIONALLY KNOWN DRUG ITEM; Manufacturing other items also, wishes to sell. Opportunity to expand business. Box JU-4, DRUG & COSMETIC INDUSTRY.

EXECUTIVE WANTS TO BUY going manufacturing firm in cosmetics, drug, chemical or allied field. Has cash. Business must have record of consistent earnings. You will be dealing with the principle. Write Box JU-8, DRUG & COSMETIC INDUSTRY.

WANTED

Commission representatives who can actually obtain substantial perfume and flavor business.

Give full details in strict confidence. Advertiser is large firm.

Box JU-1, Drug & Cosmetic Industry, 101 West 31st St., New York 11, N. Y.

BUSINESS WANTED

We are a New York company, engaged in the manufacture and export of flavoring extracts and allied products, and are desirous of expanding our activities into the domestic market. We feel that this can best be accomplished through the purchase of a successful company in this field. A merger would be considered.

We will consider only a company with a good record of earnings and favorable prospects for the future.

Box JU-2, DRUG & COSMETIC INDUSTRY,
101 West 31st St., New York 1, N. Y.

The C. E. Ising Corporation

Manufacturing Chemists

AROMATIC PRODUCTS

"I.G." ("ISING" GERMICIDE)

SOAPS FOR KENNELS AND INDUSTRIES

MASKING ODORS FOR INDUSTRIES

FOUNDED 1908

FLUSHING NEW YORK

Use LABELS AND SEALS..

by

JOHN HORN

835 - 839 TENTH AVENUE

NEW YORK 19, N. Y.

FOR OVER FIFTY YEARS

for greater sales appeal

METAL • EMBOSSED • ENGRAVED

DIE STAMPING FOR BOXMAKERS

NRC FORMULA CAPSULES

These are the formulas recommended by the National Research Council of the National Academy of Sciences.

N. R. C. MAINTENANCE VITAMIN FORMULA—For the average daily requirement of vitamins in a single capsule. #3 two-tone capsule.

N. R. C. THERAPEUTIC VITAMIN FORMULA

For use in cases where therapeutic doses are indicated, as in periods of ill-health and under stress conditions. In a #0 Yellow opaque capsule.

Keep Ahead with NYSCO

IN STOCK FOR IMMEDIATE DELIVERY

Write for our catalogue and NYSCO NEWS AND NOTES.

NYSCO Laboratories, Inc., 22-20 40th Ave., L. I. C. 1, N. Y.

TEL: RAvenswood 9-6960-1 • CABLE: NYSCOLAB New York

Aromatic Chemicals

FOR PERFUMERY AND FLAVORS

Isopropyl Quinoline • Isobutyl Quinoline

Ethyl Anthranilate • Isobutyl Anthranilate

Diacetyl • Acetyl Propionyl • Acetoin

FAIRMOUNT CHEMICAL CO., INC.

600 FERRY STREET • NEWARK 5, N. J.

HIGH GRADE COSMETIC POWDERS

Tamms

• Powdered Talc • Infusorial Earth

• English Kaolin • Clay and Silica

• Precipitated Chalk

Write us about your special needs. Send for prices and samples.

TAMMS INDUSTRIES, INC., Dept. RM-11, 228 N. La Salle St., Chicago 1

MOULDS

LIPSTICK - COLOGNE - DEODORANT

STYPTIC PENCILS - MASCARA

SUPPOSITORIES

PROGRESSIVE LABELING MACHINE, Inc.

137 West 22nd St., New York 11, N. Y.

ROUGE COMPACT POWDER

PUNCHES FOR TABLETS

also

FOOT & POWER PRESSES FURNISHED

DIES

BOOKS:

As a convenience to our subscribers we offer the books of all publishers—technical and non-technical—at the regular published price—postage paid anywhere.

Consult our BOOK DEPARTMENT—direct your inquiries to

Book Department

Drug & Cosmetic Industry

101 West 31st St., New York 1, N. Y.

LOngacre 3-3177

falba

Reg. U.S. and Foreign Countries

"THE HEART OF LANOLINE"

THE OXYCHOLESTERIN ABSORPTION BASE

Suggested Formulae on Request

Pfaltz & Bauer, Inc.

EMPIRE STATE BUILDING, NEW YORK

Jasmin

CAMILLI, ALBERT & LALOUE, S. A.

Grasse, France **Established 1830**

"MAXIMAROME"

ABSOLUTES

BROOM (Genet)
CARNATION
CASSIE ANCIENNE
CIVET
CLARY SAGE
EVERLASTING (Immortelle)
GERANIUM
JASMIN
JASMIN POMMADES
JASMIN CHASSIS
JASMIN BENZOL
LABDANUM
LAVENDER
LIATRIX
MATE
MELLILOT
MIMOSA
MOUSSE D'ARBRE
MOUSSE D'ARBRE COLORLESS
OAKMOSS YOUGOSLAVIAN
ORANGE FLOWER
ORRIS
ROSE DE MAI
TOBACCO
TUBEROSE POMMADES
VIOLET LEAVES
YLANG YLANG A

CAMILLI, ALBERT & LALOUE, INC.

14 East 48th Street **New York 17, N. Y.**

Phone PLaza 3-6070

ADVERTISING INDEX

Aceto Chemical Co., Inc. 133
Adrian & Cie. 96
American Aromatics, Inc. 108
American Cholesterol Products, Inc. 110-111
American Cyanamid Company—Fine Chemicals Div. 92
Anchor Hocking Glass Company 58
Aromatic Products, Inc. ..... Insert facing 72
Art Tube Company, Inc. 70
Atlas Power Company 22

Baker Chemical Co., J. T. 66
Ball Brothers Company 45
Bertrand Freres, Inc. 13
Bush & Co., W. J. 100

Calumet Manufacturing Co., Inc. ..... Insert facing 64 and bet. 64-65
Camilli, Albert & Laloue, Inc. 136
Carr-Lowrey Glass Co. 76
Cavalla, Inc., A. 133
Chiris Co., Inc., Antoine 9
Colton Company, Arthur 84
Continental Can Company 56
Continental Filling Corporation 62
Crown Cork and Seal Company, Incorporated 112
Crown Cork & Seal Company, Inc., Crown Can Division 65

Day Co., The J. H. 86
Devold Oil Co., Peder 108
Distillation Products, Inc. 20
Dodge & Olcott, Inc. 78
Dow Chemical Co. 7
Dreyer, P. R., Inc. ..... Insert facing 8
Dunkel & Co., Inc., Paul A. 94
du Pont de Nemours & Co., E. I., "Kinetic" Chemicals Division 46-47
Durlin Co. ..... Insert facing 28

Eastman Chemical Products, Inc. 115
Economic Machinery Company 117
Emery Industries, Inc. 11
Ertel Engineering 100
Evans Chemetics, Inc. 108

Fairmount Chemical Co. 135
Felton Chemical Co., Inc. 18
Firmenich & Co., Inc. ..... Insert facing 17
Florasynth Labs., Inc. 6

Givaudan-Delawanna, Inc. ..... Insert bet. 28-29
Gottscho, Inc., Adolph 96
Grongoire 113

Halby Products Co. 100
Hardesty Co., Inc., W. C. 17
Haring Equipment Corp. 133
Hazel-Atlas Glass Company ..... Insert facing 49
Heyden Chemical Corp. ..... Insert facing 73
Hinde & Dauch ..... Insert facing 44
Hoffmann-La Roche, Inc. 1
Hooker Electrochemical Co. 28
Hormann & Co., F. R. 90
Horn, John 135
Huisking & Co., Inc., Chas. L. 108

Ising Corp., C. E. 135

Kelton Cosmetics Co. 118
Kimberly-Clark Corp. 60
Kimble Glass ..... Insert facing 65
Kolar Laboratories, Inc. 12
Kolmar Laboratories 15
Koster-Keunen Mfg. Co., Inc. 97

Lautier Fils 16
Lueders & Co., George 8

Magnus, Mabee & Reynard, Inc. 125
Mallinckrodt Chemical Works ..... Insert facing 29
Mathieu, Inc., Charles 108
Merck & Co., Inc. 68

National Aniline Div., Allied Chemical & Dye Corp. ..... Insert facing 9
Neumann, Buslee & Wolfe, Inc. 96
New Jersey Machine Corp. 91
New Jersey Zinc Co. 119
New York Quinine & Chemical Works, Inc. 14
Norda Essential Oil & Chemical ..... Cover 2
Nysco Laboratories, Inc. 135

Old Empire Mfg. Chemists, Inc. 96
Owens-Illinois ..... Insert bet. 44-45 and pg. 50

Parsons-Plymouth, Inc., M. W. 94
Pennsylvania Glass Products Co., Inc. 52
Perl Machine Mfg. Co. 123
Pfaltz & Bauer Co., Inc. 135
Pfizer & Co., Inc., Chas. ..... Cover 4
Plax Corporation 74
Pneumatic Scale Corp., Ltd. 82
Polak & Schwarz, Inc. 10
Popper & Sons, Inc. 90
Precision Valve Corp. 54
Private Label Cosmetics 121
Progressive Labelling Machine Inc. 135

Ritter & Company, F. 129
Roure-Dupont, Inc. 104

Santonin Company of America 108
Sheffield Tube Corp. ..... Insert facing 48
Sindar Corporation 26
Standard Pharmacal Co. 125
Sterwin Chemicals, Inc. 3
Stokes Machine Co., F. J. 80
Stokes & Smith Company 88
Strand Cosmetics, Inc. 5
Strong Cobb & Co., Inc. 98
Sunkist Growers ..... Insert facing 16
Synfleur Scientific Labs. 102

Tamms Industries, Inc. 135
Thurston & Braidich 131
Trade Mark Record Book 64

Ungerer & Co., Inc. ..... Cover 3
U. S. Bottlers Machine Co. 90

van Ameringen-Haebler, Inc. ..... Insert bet. 8-9
Vanderbilt Co., R. T. 120
Verona Chemical Co. 4
Vitamerican Oil Corp. 127

Welch, Holme & Clarke, Inc. 122
Westbrook Lanolin Company 97
Wheaton Co., T. C. ..... Insert facing 45
Whittaker, Clark & Daniels, Inc. 127
Will & Baumer Candle Co. 24
Windsor Chemical Laboratories 129
Wolf & Co., Jacques 131

For Outstanding Perfume Specialties

America's top perfumers, whether in search of superlative Old World natural flower products or new unusual perfume specialties, always depend on Ungerer. Remember, when you specify Ungerer, you receive the finest materials that 60 years of research, development, and accumulated perfume knowledge can provide.

Ungerer & Co.

161 AVENUE OF THE AMERICAS, NEW YORK 13, N. Y.

Plant and Laboratories, TOTOWA, N. J.

CHICAGO BOSTON PHILADELPHIA ST. LOUIS LOS ANGELES ATLANTA

worried about the costs

of meeting Vitamin A label claims?

try

PFIZER VITAMIN A CRYSTALETS®

• If you are adding excess overages of Vitamin A to meet label claims, and in doing so, keeping your raw material costs high, it's time you tried Pfizer Vitamin A Crystalets.

Crystalets save you money because they retain a high percentage of their original potency. As a result, you add less overage to meet label claims.

Pfizer Vitamin A Crystalets have this remarkable stability because protection against potency loss is "built-in." Crystalline Vitamin A Acetate is enveloped in a matrix of gelatin and sugar to form dry, stable, free-flowing granules.

Crystalets simplify handling, too. There is no need for special precautions or extra assays. And you get precise control with every batch.

Pfizer Vitamin A Crystalets are available in potencies of 250,000 and 500,000 units per gram and in a variety of mesh sizes. Pfizer also offers Vitamin A and D Crystalets with the same advantages as Vitamin A Crystalets.

CHAS. PFIZER & CO., INC.

CHEMICAL SALES DIVISION

630 Flushing Ave., Brooklyn 6, N. Y.

Branch Offices: Chicago, Ill.; San Francisco, Calif.; Vernon, Calif.; Atlanta, Ga.

Pioneer and Leading Manufacturer of Vitamins Pfizer